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BIBLIOGRAPHY

# Bibliography of reviews and methods of photosynthesis – 86

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## REVIEW PAPERS

Allen, J.P., Williams, J.C.: Photosynthetic reaction centers. – FEBS Lett. **438**: 5-9, 1998. [36 ref.]

Alscher, R.G., Donahue, J.L., Cramer, C.L.: Molecular responses to reactive oxygen species: Multifaceted changes in gene expression. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 233-240. Backhuys Publishers, Leiden – New York 1998. [Chloroplast; 49 ref.]

Ananyev, G.M., Zaltsman, L., Vasko, C., Dismukes, G.C.: The inorganic biochemistry of photosynthetic oxygen evolution/water oxidation. – Biochim. biophys. Acta **1503**: 52-68, 2001. [114 ref.]

Argüello-Astorga, G., Herrera-Estrella, L.: Evolution of light-regulated plant promoters. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 525-555, 1998. [Light-harvesting pigment-proteins complexes, chloroplasts; 138 ref.]

Armstrong, G.A.: Greening in the dark: light-independent chlorophyll biosynthesis from anoxygenic photosynthetic bacteria to gymnosperms. – J. Photochem. Photobiol. B **43**: 87-100, 1998. [94 ref.]

Asada, K.: The water-water cycle in chloroplasts: Scavenging of active oxygens and dissipation of excess photons. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 601-639, 1999. [222 ref.]

Asada, K., Endo, T., Mano, J., Miyake, C.: Molecular mechanism for relaxation of and protection from light stress. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 37-52. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [Ps, Chl; 71 ref.]

Asada, Y., Miyake, J.: Photobiological hydrogen production. – J. Biosci. Bioeng. **88**: 1-6, 1999. [67 ref.]

Assmann, S.M.: The cellular basis of guard cell sensing of rising $CO_2$. – Plant Cell Environ. **22**: 629-637, 1999. [67 ref.]

Barber, J., Sharma, J.: Application of mass spectrometry to the study of photosystem II. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 413-425. Taylor & Francis, London – New York 2000. [30 ref.]

Battaglia, M., Cherry, M.L., Beadle, C.L., Sands, P.J., Hingston, A.: Prediction of leaf area index in eucalypt plantations: effects of water stress and temperature. – Tree Physiol. **18**: 521-528, 1998. [Growth analysis; 66 ref.]

Baymann, D., Brugna, M., Mühlenhoff, U., Nitschke, W.: Daddy, where did (PS)I come from? – Biochim. biophys. Acta **1507**: 291-310, 2001. [88 ref.]

Benning, C.: Biosynthesis and function of the sulfolipid sulfoquinovosyl diacylglycerol. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 53-75, 1998. [79 ref.]

Berkowitz, G.A.: Water and salt stress. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 226-237. Cambridge University Press, Cambridge 1998. [Ps; 8 ref.]

Berman-Frank, I., Dubinsky, Z.: Balanced growth in aquatic plants: Myth or reality? – BioScience **49**: 29-37, 1999. [Primary production; 56 ref.]

Berzborn, R.J.: Stalk, no stalk or double-stalk? Experimental strategies, results and speculations on $CF_1$ $CF_0$ interactions within the photosynthetic ATP synthase. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 70-107. Taylor & Francis, London – New York 2000. [210 ref.]

Beyschlag, W., Eckstein, J.: Stomatal patchiness. – Progr. Bot. **59**: 283-298, 1998. [109 ref.]

Beyschlag, W., Ryel, R.J.: Modelling leaf/canopy photosynthesis. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 305-319. Cambridge University Press, Cambridge 1998. [40 ref.]

Bhagwat, A.S.: Ribulose-1,5-bisphosphate carboxylase/oxygenase: activation and regulation. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 196-212. Taylor & Francis, London – New York 2000. [72 ref.]

Bittl, R., Zech, S.G.: Pulsed EPR spectroscopy on short-lived intermediates in photosystem I. – Biochim. biophys. Acta **1507**: 194-211, 2001. [73 ref.]

Blankenship, R.E., Hartman, H.: The origin and evolution of oxygenic photosynthesis. – Trends biochem. Sci. **23**: 94-97, 1998. [34 ref.]

*Abbreviations in the notes:* BChl = bacteriochlorophyll; Bil = phycobilins; Car = carotenoids; CC = column chromatography; Chl = chlorophyll; Cyt = cytochrome; GC = gas chromatography; HPLC = high performance liquid chromatography; IRGA = infra-red gas analyser; LAI = leaf area index; PC = paper chromatography; PEPC = phosphoenolpyruvate carboxylase; PAR = photosynthetically active radiation; Ps = photosynthesis; RuBPCO = ribulose-1,5-bisphosphate carboxylase/oxygenase; TLC = thin-layer chromatography; Tr = transpiration; WUE = water use efficiency; ab = abstract; E = English; F = French; G = German; R = Russian; ref. = references.

Böger, P., Sandmann, G.: Action of modern herbicides. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 337-351. Cambridge University Press, Cambridge 1998. [39 ref.]

Boussiba, S.: Carotenogenesis in the green alga *Haematococcus pluvialis*: Cellular physiology and stress response. – Physiol. Plant. **108**: 111-117, 2000. [Photosynthates; 55 ref.]

Breton, J.: Fourier transform infrared spectroscopy of primary electron donors in type I photosynthetic reaction centers. – Biochim. biophys. Acta **1507**: 180-193, 2001. [60 ref.]

Brettel, K., Leibl, W.: Electron transfer in photosystem I. – Biochim. biophys. Acta **1507**: 100-114, 2001. [72 ref.]

Bricker, T.M., Frankel, L.K.: The structure and function of the 33 kDa extrinsic protein of Photosystem II: A critical assessment. – Photosynth. Res. **56**: 157-173, 1998. [94 ref.]

Brown, L.S.: Proton transport mechanism of bacteriorhodopsin as revealed by site-specific mutagenesis and protein sequence variability. – Biokhimiya **66**: 1546-1554, 2001. Biochemistry (Moscow) **66**: 1249-1255, 2001. [76 ref.]

Brownlee, C.: The long and the short of stomatal density signals. – Trends Plant Sci. **6**: 441-442, 2001. [14 ref.]

Bruce, B.D.: The role of lipids in plastid protein transport. – Plant mol. Biol. **38**: 223-246, 1998. [162 ref.]

Bruce, B.D.: Chloroplast transit peptides: structure, function and evolution. – Trends Cell Biol. **10**: 440-447, 2000. [66 ref.]

Bukhov, N.G., Mohanty, P.: Elevated temperature stress effects on photosystems: Characterization and evaluation of the nature of heat induced impairments. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 617-648. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [136 ref.]

Bullerjahn, G.S.: Protein-protein interactions in plastocyanin function: Examination of a divergent plastocyanin homolog. – Spectrum **13**(4): 1, 3-6, 2000. [30 ref.]

Bunce, J.A., Ziska, L.H.: Crop ecosystem responses to climatic change: crop/weed interactions. – In: Reddy, K.R., Hodges, H.F. (ed.): Climate Change and Global Crop Productivity. Pp. 333-352. CABI Publishing, Wallingford – New York 2000. [88 ref.]

Burnell, J.N.: Carbonic anhydrases of higher plants: an overview. – In: Chegwidden, W.R., Carter, N.D., Edwards, Y.H. (ed.): The Carbonic Anhydrases. New Horizons. Pp. 501-518. Birkhäuser Verlag, Basel – Boston – Berlin 2000. [47 ref.]

Campbell, D., Hurry, V., Clarke, A.K., Gustafsson, P., Öquist, G.: Chlorophyll fluorescence analysis of cyanobacterial photosynthesis and acclimation. – Microbiol. mol. Biol. Rev. **62**: 667-683, 1998. [156 ref.]

Castresana, J.: Comparative genomics and bioenergetics. – Biochim. biophys. Acta **1506**: 147-162, 2001. [Ps; 145 ref.]

Cavalier-Smith, T.: Membrane heredity and early chloroplast evolution. – Trends Plant Sci. 5: 174-182, 2000. [65 ref.]

Cavalier-Smith, T.: Chloroplast evolution: Secondary symbiogenesis and multiple losses. – Curr. Biol. **12**: R62-R64, 2002. [19 ref.]

Chappelka, A.H., Samuelsson, L.J.: Ambient ozone effects on forest trees of the eastern United States: a review. – New Phytol. **139**: 91-108, 1998. [Ps; 120 ref.]

Chen, X., Schnell, D.J.: Protein import into chloroplasts. – Trends Cell Biol. **9**: 222-227, 1999. [48 ref.]

Chitnis, P.R.: Import, assembly and degradation of chloroplast proteins. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 58-71. Cambridge University Press, Cambridge 1998. [39 ref.]

Chitnis, P.R.: Photosystem I: Function and physiology. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 593-626, 2001. [150 ref.]

Chow, W.S., Hope, A.B.: Mechanisms and physiological roles of proton movements in plant thylakoid membranes. – In: Rengel, Z. (ed.): Handbook of Plant Growth. pH as the Master Variable. Pp. 149-171. Marcel Dekker, New York – Basel 2002. [78 ref.]

Chu, H.-A., Hillier, W., Law, N.A., Babcock, G.T.: Vibrational spectroscopy of the oxygen-evolving complex and of manganese model compounds. – Biochim. biophys. Acta **1503**: 69-82, 2001. [126 ref.]

Cockell, C.S.: A photobiological history of Earth. - In: Cockell, C.S., Blaustein, A.R. (ed.): Ecosystems, Evolution, and Ultraviolet Radiation. Pp. 1-35. Springer-Verlag, New York – Berlin – Heidelberg 2001. [Ps; 124 ref.]

Conroy, J.P., Ghannoum, O., Jitla, D., Rogers, G., Seneweera, S.: Plant responses to elevated $CO_2$ and climate stress. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 181-191. Backhuys Publishers, Leiden – New York 1998. [Ps; 22 ref.]

Cornet, J.-F., Dussap, C.G., Gross, J.-B.: Kinetics and energetics of photosynthetic micro-organisms in photobioreactors. Application to *Spirulina* growth. – In: Scheper, T. (ed.): Bioprocess and Algae Reactor Technology, Apoptosis. Pp. 153-224. Springer-Verlag, Berlin – Heidelberg – New York – Barcelona – Budapest – Hong Kong – London – Milan – Paris – Santa Clara – Singapore – Tokyo 1998. [110 ref.]

Critchley, C.: Photoinhibition. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 264-272. Cambridge University Press, Cambridge 1998. [21 ref.]

Critchley, C.: Molecular adaptation to irradiance: The dual functionality of photosystem II. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 572-587. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [23 ref.]

Croxdale, J.: Stomatal pattering in monocotyledons: *Tradescantia* as a model system. – J. exp. Bot. **49**(Spec. Issue): 279-292, 1998. [68 ref.]

Cunningham, F.X., Gantt, E.: Genes and enzymes of carotenoid biosynthesis in plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 557-583, 1998. [113 ref.]

Cushman, J.C., Bohnert, H.J.: Crassulacean acid metabolism: Molecular genetics. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 305-332, 1999. [175 ref.]

Daniell, H.: Environmentally friendly approaches to genetic engineering. – In Vitro cell. dev. Biol. Plant **35**: 361-368, 1999. [Chloroplast; 52 ref.]

DasSarma, S., Kennedy, S.P., Berquist, B., Ng, W.V., Baliga, N.S., Spudich, J.L., Krebs, M.P., Eisen, J.A., Johnson, C.H., Hood, L.: Genomic perspective on the photobiology of *Halobacterium* species NRC-1, a phototrophic, phototactic, and UV-tolerant haloarchaeon. – Photosynth. Res. **70**: 3-17, 2001. [59 ref.]

Dau, H., Iuzzolino, L., Dittmer, J.: The tetra-manganese complex of photosystem II during its redox cycle – X-ray absorption results and mechanistic implications. – Biochim. biophys. Acta **1503**: 24-39, 2001. [71 ref.]

Davies, J.P., Grossman, A.R.: The use of *Chlamydomonas* (*Chlorophyta: Volvocales*) as a model algal system for

genome studies and the elucidation of photosynthetic processes. – J. Phycol. **34**: 907-917, 1998. [153 ref.]

Day, T.A.: Ultraviolet radiation and plant ecosystems. – In: Cockell, C.S., Blaustein, A.R. (ed.): Ecosystems, Evolution, and Ultraviolet Radiation. Pp. 80-117. Springer-Verlag, New York – Berlin – Heidelberg 2001. [Ps; 213 ref.]

Day, W., Bailey, B.J.: Physical principles of microclimate modification. – In: Stanhill, G., Enoch, H.Z. (ed.): Greenhouse Ecosystems. (Ecosystems of the World 20.) Pp. 71-99. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1999. [Ps; 60 ref.]

de Groot, H.J.M.: Solid-state NMR spectroscopy applied to membrane proteins. – Curr. Opin. struct. Biol. **10**: 593-600, 2000. [PS2; 50 ref.]

de Silva, D.L.R., Hetherington, A.M., Mansfield, T.A.: The regulation of apoplastic calcium in relation to intracellular signalling in stomatal guard cells. – Z. Pflanzenern. Bodenk. **161**: 533-539, 1998. [34 ref.]

Debus, R.J.: Amino acid residues that modulate the properties of tyrosine $Y_Z$ and the manganese cluster in the water oxidizing complex of photosystem II. – Biochim. biophys. Acta **1503**: 164-186, 2001. [320 ref.]

Dekker, J.P., van Grondelle, R.: Primary charge separation in Photosystem II. – Photosynth. Res. **63**: 195-208, 2000. [78 ref.]

del Río, L.A., Pastori, G.M., Palma, J.M., Sandalio, L.M., Sevilla, F., Corpas, F.J., Jiménez, A., López-Huertas, E., Hernández, J.A.: The activated oxygen role of peroxisomes in senescence. – Plant Physiol. **116**: 1195-1200, 1998. [32 ref.]

Deligiannakis, Y., Rutherford, A.W.: Electron spin echo envelope modulation spectroscopy in photosystem I. – Biochim. biophys. Acta **1507**: 226-246, 2001. [80 ref.]

Dietz, K.-J., Golldack, D.: Crassulacean acid metabolism: a special case of pH regulation and $H^+$ fluxes. – In: Rengel, Z. (ed.): Handbook of Plant Growth. pH as the Master Variable. Pp. 227-253. Marcel Dekker, New York – Basel 2002. [107 ref.]

Diner, B.A.: Amino acid residues involved in the coordination and assembly of the manganese cluster of photosystem II. Proton-coupled electron transport of the redox-active tyrosines and its relationship to water oxidation. – Biochim. biophys. Acta **1503**: 147-163, 2001. [161 ref.]

Dioumaev, A.K.: Infrared methods for monitoring the protonation state of carboxylic amino acids in the photocycle of bacteriorhodopsin. – Biokhimiya **66**: 1570-1579, 2001. Biochemistry (Moscow) **66**: 1269-1276, 2001. [141 ref.]

Dominy, P., Mullineaux, C.: State transitions in cyanobacteria. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 310-323. Taylor & Francis, London – New York 2000. [35 ref.]

Douglas, S.E.: Plastid evolution: origins, diversity, trends. - Curr. Opin. Genet. Dev. **8**: 655-661, 1998. [73 ref.]

Drake, B.G., Jacob, J., Gonzàlez-Meler, M.A.: Photosynthesis, respiration and global climate change. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 273-282. Cambridge University Press, Cambridge 1998. [30 ref.]

Edwards, D., Kerp, H., Hass, H.: Stomata in early land plands: an anatomical and ecophysiological approach. – J. exp. Bot. **49**(Spec. Issue): 255-278, 1998. [75 ref.]

Ernst, W.H.O.: Ecotypic variation and environmental adaptation to air pollution and global change. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 217-232. Backhuys Publishers, Leiden – New York 1998. [Ps; 90 ref.]

Falkowski, P.G., Barber, R.T., Smetacek, V.: Biogeochemical controls and feedbacks on ocean primary production. – Science **281**: 200-206, 1998. [100 ref.]

Feher, G.: Three decades of research in bacterial photosynthesis and the road leading to it: A personal account. – Photosynth. Res. **55**: 1-40, 1998. [159 ref.]

Fleischman, D., Kramer, D.: Photosynthetic rhizobia. – Biochim. biophys. Acta **1364**: 17-36, 1998. [122 ref.]

Flügge, U.-I.: Metabolite transporters in plastids. – Curr. Opin. Plant Biol. **1**: 201-206, 1998. [49 ref.]

Flügge, U.-I.: Phosphate translocators in plastids. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 27-45, 1999. [77 ref.]

Flügge, U.-I.: Transport in and out of plastids: does the outer envelope membrane control the flow? – Trends Plant Sci. **5**: 135-137, 2000. [14 ref.]

Forsman, C.: Plant carbonic anhydrases: structure and mechanism. – In: Chegwidden, W.R., Carter, N.D., Edwards, Y.H. (ed.): The Carbonic Anhydrases. New Horizons. Pp. 519-533. Birkhäuser Verlag, Basel – Boston – Berlin 2000. [49 ref.]

Friedrich, C.G.: Physiology and genetics of sulfur-oxidizing bacteria. – Adv. microb. Physiol. **39**: 235-289, 1998. [250 ref.]

Fromme, P.: Biology of Photosystem I: Structural aspects. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 181-220. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [126 ref.]

Fromme, P., Jordan, P., Krauss, N.: Structure of photosystem I. – Biochim. biophys. Acta **1507**: 5-31, 2001. [169 ref.]

Fukuzawa, H., Tsuzuki, M., Miyachi, S.: Algal carbonic anhydrase. – In: Chegwidden, W.R., Carter, N.D., Edwards, Y.H. (ed.): The Carbonic Anhydrases. New Horizons. Pp. 535-546. Birkhäuser Verlag, Basel – Boston – Berlin 2000. [58 ref.]

Furbank, R.T.: $C_4$ pathway. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 123-135. Cambridge University Press, Cambridge 1998. [30 ref.]

Fyfe, P.K., McCauley-Hecht, K.E., Jones, M.R., Cogdell, R.J.: Purple bacterial photosynthetic reaction centres. – In: Haris, P.I., Chapman, D. (ed.): Biomembrane Structures. Vol. 20. Pp. 64-87, IOS Press 1998. [113 ref.]

Garcia-Asua, G., Lang, H.P., Cogdell, R.J., Hunter, C.N.: Carotenoid diversity: a modular role for the phytoene desaturase step. – Trends Plant Sci. **3**: 445-449, 1998. [25 ref.]

Gattuso, J.-P., Frankignoulle, M., Wollast, R.: Carbon and carbonate metabolism in coastal aquatic ecosystems. – Annu. Rev. Ecol. Syst. **29**: 405-434, 1998. [165 ref.]

Geijer, P., Peterson, S., Åhrling, K.A., Deák, Z., Styring, S.: Comparative studies of the $S_0$ and $S_2$ multiline electron paramagnetic resonance signals from the manganese cluster in Photosystem II. – Biochim. biophys. Acta **1503**: 83-95, 2001. [81 ref.]

Gemel, J., Waters-Earhart, B., Ellersieck, M.R., Asfaw, A., Krause, G.F., Puri, V., Lower, W.R.: Photosynthetic electron transport as a bioassay. – In: Wang, W., Gorsuch, J.W., Hughes, J.S. (ed.): Plants for Environmental Studies. Pp. 209-224. CRC Press, Lewis Publishers, Boca Raton – New York 1997. [25 ref.]

Gest, H.: Memoir of a 1949 railway journey with photosynthetic bacteria. – Photosynth. Res. **61**: 91-96, 1999. [20 ref.]

Gibbs, M.: Educator and editor. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 1-25, 1999. [Ps; 0 ref.]

Gilmore, A.M., Govindjee: How higher plants respond to excess light: Energy dissipation in photosystem II. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 513-548. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [83 ref.]

Girault, G., Berger, G., Zimmermann, J.-L.: Nucleotide-CF1 interactions and current views on the catalytic mechanism. – Photosynth. Res. **57**: 253-266, 1998. [100 ref.]

Gleason, D.F.: Ultraviolet radiation and coral communities. - In: Cockell, C.S., Blaustein, A.R. (ed.): Ecosystems, Evolution, and Ultraviolet Radiation. Pp. 118-149. Springer-Verlag, New York – Berlin – Heidelberg 2001. [Devices for measuring irradiance in waters, Ps, Car; review, 112 ref.]

Gobets, B., van Grondelle, R.: Energy transfer and trapping in photosystem I. – Biochim. biophys. Acta **1507**: 80-99, 2001. [97 ref.]

Gómez, S.M., Chitnis, P.R.: Light-harvesting antennas in plants. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 51-69. Taylor & Francis, London – New York 2000. [71 ref.]

Govindjee: Milestomes in photosynthesis research. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 9-39. Taylor & Francis, London – New York 2000. [186 ref.]

Goyal, A.: Photosynthetic oxygen compensation point ($O_2\Gamma$): A new concept. – Indian J. Plant Physiol. **6**: 1-9, 2001. [66 ref.]

Grimm, B.: Novel insighs in the control of tetrapyrrole metabolism of higher plants. – Curr. Opin. Plant Biol. **1**: 245-250, 1998. [Chl, Bil; 39 ref.]

Groth, G., Strotmann, H.: New results about structure, function and regulation of the chloroplast ATP synthase ($CF_0CF_1$). – Physiol. Plant. **106**: 142-148, 1999. [57 ref.]

Häder, D.-P.: Ultraviolet radiation and aquatic microbial ecosystems. – In: Cockell, C.S., Blaustein, A.R. (ed.): Ecosystems, Evolution, and Ultraviolet Radiation. Pp. 150-169. Springer-Verlag, New York – Berlin – Heidelberg 2001. [Measurement of UV-B; review, 125 ref.]

Hagemann, R., Hagemann, M.M., Block, R.: Genetic extranuclear inheritance: Plastid genetics. – Progr. Bot. **59**: 108-130, 1998. [57 ref.]

Hall, R.D.: Biotechnological applications for stomatal guard cells. – J. exp. Bot. **49**(Spec. Issue): 369-375, 1998. [36 ref.]

Hanson, A.D., Roje, S.: One-carbon metabolism in higher plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 119-137, 2001. [Photorespiration; 116 ref.]

Haraux, F., de Kouchkovsky, Y.: Energy coupling and ATP synthase. – Photosynth. Res. **57**: 231-251, 1998. [165 ref.]

Harris, E.H.: *Chlamydomonas* as a model organism. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 363-406, 2001. [Ps, chloroplast; 257 ref.]

Hartman, H.: Photosynthesis and the origin of life. – Origins Life Evol. Biosphere **28**: 515-521, 1998. [14 ref.]

Hartung, W., Shiller, P., Dietz, K.J.: Physiology of poikilohydric plants. – Progr. Bot. **59**: 299-327, 1998. [Ps, Chl; 93 ref.]

Hartung, W., Wilkinson, S., Davies, W.J.: Factors that regulate abscisic acid concentrations at the primary site of action at the guard cell. – J. exp. Bot. **49**(Spec. Issue): 361-367, 1998. [38 ref.]

Harwood, J.L.: Environmental effects on plant lipid biochemistry. – In: Harwood, J.L. (ed.): Plant Lipid Biosynthesis. Fundamentals and Agricultural Applications. Pp. 305-347. Cambridge University Press, Cambridge – New York – Oakleigh 1998. [Chloroplast; 171 ref.]

Haselkorn, R., Lapidus, A., Kogan, Y., Vlcek, C., Paces, J., Paces, V., Ulbrich, P., Pecenkova, T., Rebrekov, D., Milgram, A., Mazur, M., Cox, R., Kyrpides, N., Ivanova, N., Kapatral, V., Los, T., Lykidis, A., Mikhailova, N., Reznik, G., Vasieva, O., Fonstein, M.: The *Rhodobacter capsulatus* genome. – Photosynth. Res. **70**: 43-52, 2001. [Ps; 19 ref.]

Hauska, G., Arnold, M.: Energy transduction in the Z-scheme. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 108-126. Taylor & Francis, London – New York 2000. [77 ref.]

Hauska, G., Schoedl, T., Remigy, H., Tsiotis, G.: The reaction center of green sulfur bacteria. – Biochim. biophys. Acta **1507**: 260-277, 2001. [117 ref.]

Havaux, M.: Carotenoids as membrane stabilizers in chloroplasts. – Trends Plant Sci. **3**: 147-151, 1998. [38 ref.]

Hayashi, H., Murata, N.: Genetically engineered enhancement of salt tolerance in higher plants. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 133-148. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [Ps; 90 ref.]

He, W.Z., Malkin, R.: Photosystem I and II. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 29-43. Cambridge University Press, Cambridge 1998. [26 ref.]

Heberle, J., Fitter, J., Sass, H.J., Büldt, G.: Bacteriorhodopsin: the functional details of a molecular machine are being resolved. – Biophys. Chem. **85**: 229-248, 2000. [148 ref.]

Heineke, D.: Application in biotechnology. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 352-361. Cambridge University Press, Cambridge 1998. [Ps; 12 ref.]

Heineke, D., Kauder, F., Frommer, W., Kühn, C., Gillisen, B., Ludewig, F., Sommewald, U.: Application of transgenic plants in understanding responses to atmospheric change. – Plant Cell Environ. **22**: 623-628, 1999. [Ps; 24 ref.]

Heins, L., Collinson, I., Soll, J.: The protein translocation apparatus of chloroplast envelopes. – Trends Plant Sci. **3**: 56-61, 1998. [40 ref.]

Heins, L., Soll, J.: Chloroplast biogenesis: Mixing the prokaryotic and the eukaryotic? – Curr. Biol. **8**: R215-R217, 1998. [21 ref.]

Herrmann, R.G., Maier, R.M.: Chloroplast thylakoid membranes. A paradigm for biogenetic and evolutionary complexity. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 127-147. Taylor & Francis, London – New York 2000. [97 ref.]

Hess, W.R., Rocap, G., Ting, C.S., Larimer, F., Stilwagen, S., Lamerdin, J., Chisholm, S.W.: The photosynthetic apparatus of *Prochlorococcus*: Insights through comparative genomics. – Photosynth. Res. **70**: 53-71, 2001. [Chl, Bil; 138 ref.]

Hillier, W., Wydrzynski, T.: Oxygen ligand exchange at metal sites – implications for the $O_2$ evolving mechanism of photosystem II. – Biochim. biophys. Acta **1503**: 197-209, 2001. [88 ref.]

Hippler, M., Redding, K., Rochaix, J.-D.: *Chlamydomonas* genetics, a tool for the study of bioenergetic pathways. – Biochim. biophys. Acta **1367**: 1-62, 1998. [463 ref.]

Hoefnagel, M.H.N., Atkin, O.K., Wiskich, J.T.: Interdependence between chloroplasts and mitochondria in the light and the dark. – Biochim. biophys. Acta **1366**: 235-255, 1998. [160 ref.]

Hoffmann, P.: Oxygenic photosynthesis – a photon driven hydrogen generator – the energetic/entropic basis of life. – Photosynthetica **35**: 1-11, 1998. [82 ref.]

Holst, R.W., Nagel, D.J.: Radiation effects on plants. – In: Wang, W., Gorsuch, J.W., Hughes, J.S. (ed.): Plants for Environmental Studies. Pp. 37-79. CRC Press, Lewis Publishers, Boca Raton – New York 1997. [171 ref.]

Hoober, K.K.: Chloroplast structure and development. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 3-17. Cambridge University Press, Cambridge 1998. [122 ref.]

Howe, C.J., Barbrook, A.C., Lockhart, P.J.: Origin of plastids. – In: Coombs, G.H., Vickerman, K., Sleigh, M.A., Warren, A. (ed.): Evolutionary Relationships Among Protozoa. Pp. 275-291. Chapman & Hall, London 1998. [35 ref.]

Huber, M.: Light-induced structural changes in the primary processes of photosynthesis: Watching an enzyme in action. – Angew. Chem. int. Ed. **37**: 1073-1075, 1998. [14 ref.]

Huber, S.C.: Starch-sucrose metabolism and assimilate partitioning. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 163-172. Cambridge University Press, Cambridge 1998. [19 ref.]

Huner, N.P.A., Öquist, G., Sarhan, F.: Energy balance and acclimation to light and cold. – Trends Plant Sci. **3**: 224-230, 1998. [39 ref.]

Hurry, V., Huner, N., Selstam, E., Gardeström, P., Öquist, G.: Photosynthesis at low growth temperatures. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 238-249. Cambridge University Press, Cambridge 1998. [44 ref.]

Ikeuchi, M., Tabata, S.: *Synechocystis* sp. PCC 6803 – a useful tool in the study of the genetics of cyanobacteria. – Photosynth. Res. **70**: 73-83, 2001. [69 ref.]

Imsande, I.: Iron, sulfur, and chlorophyll deficiencies: A need for an integrative approach in plant physiology. – Plant Physiol. **103**: 139-144, 1998. [51 ref.]

Irrgang, K.-D.: Architecture of the thylakoid membrane. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 139-180. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [178 ref.]

Ishii, R.: Leaf/canopy photosynthesis and crop productivity. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 215-225. Cambridge University Press, Cambridge 1998. [36 ref.]

Itoh, S., Iwaki, M.: Natural oxygenic and anoxygenic photosynthesis based on newly found chlorophylls. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 43-50. Taylor & Francis, London – New York 2000. [23 ref.]

Itoh, S., Iwaki, M., Ikegami, I.: Modification of photosystem I reaction center by the extraction and exchange of chlorophylls and quinones. – Biochim. biophys. Acta **1507**: 115-138, 2001. [109 ref.]

Izuta, T.: Ecophysiological responses of Japanese forest free species to ozone, simulated acid rain and soil acidification. – J. Plant Res. **111**: 471-480, 1998. [69 ref.]

Jagendorf, A.T.: Change, luck and photosynthesis research: An inside story. – Photosynth. Res. **57**: 217-227, 1998. [52 ref.]

Jajoo, A., Bharti, S., Mohanty, P.: Evaluation of the specific roles of anions in electron transport and energy transfer reactions in photosynthesis. – Photosynthetica **39**: 321-337, 2001. [140 ref.]

Jarvis, A.J., Davies, W.J.: The coupled response of stomatal conductance to photosynthesis and transpiration. – J. exp. Bot. **49**(Spec. Issue): 399-406, 1998. [25 ref.]

Jayabaskaran, C.: Light- and hormone-induced variations in the level and modified nucleotide content of plastid tRNAs. – Plant Sci. **131**: 115-122, 1998. [47 ref.]

Jeffrey, S.W., Wright, S.W., Zapata, M.: Recent advances in HPLC pigment analysis of phytoplankton. – Mar. Freshwater Res. **50**: 879-896, 1999. [121 ref.]

Jones, H.G.: Stomatal control of photosynthesis and transpiration. – J. exp. Bot. **49**(Spec. Issue): 387-398, 1998. [71 ref.]

Joyard, J., Teyssier, E., Miège, C., Berny-Seigneurin, D., Maréchal, E., Block, M.A., Dorne, A.-J., Rolland, N., Ajlani, G., Douce, R.: The biochemical machinery of plastid envelope membranes. – Plant Physiol. **118**: 715-723, 1998. [41 ref.]

Kaplan, A., Reinhold, L.: $CO_2$ concentrating mechanisms in photosynthetic microorganisms. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 539-570, 1999. [157 ref.]

Kapoor, S., Sugiura, M.: Expression and regulation of plastid genes. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 72-86. Cambridge University Press, Cambridge 1998. [43 ref.]

Keeley, J.E.: CAM photosynthesis in submerged aquatic plants. – Bot. Rev. **64**: 121-175, 1998. [201 ref.]

Kerfeld, C.A., Krogmann, D.W.: Photosynthetic cytochrome *c* in cyanobacteria, algae, and plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 397-425, 1998. [104 ref.]

Kerstiens, G.: Shade-tolerance as a predictor of responses to elevated $CO_2$ in trees. – Physiol. Plant. **102**: 472-480, 1998. [62 ref.]

Khanna-Chopra, R.: Photosynthesis in relation to crop productivity. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 263-280. Taylor & Francis, London – New York 2000. [83 ref.]

Klimov, V.V., Baranov, S.V.: Bicarbonate requirement for the water-oxidizing complex of photosystem II. – Biochim. biophys. Acta **1503**: 187-196, 2001. [44 ref.]

Knaff, D.B.: Oxidation-reduction properties of thioredoxins and thioredoxin-regulared enzymes. – Physiol. Plant. **110**: 309-313, 2000. [14 ref.]

Köhler, J.: Optical spectroscopy of individual objects. – Naturwissenschaften **88**: 514-521, 2001. [BChl; 42 ref.]

Kotani, H., Tabata, S.: Lessons from sequencing of the genome of a unicellular cyanobacterium, *Synechocystis* sp. PCC6803. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 151-171, 1998. [Ps; 74 ref.]

Kozliak, E.I., Guilloton, M.B., Fuchs, J.A., Anderson, P.M.: Bacterial carbonic anhydrases. – In: Chegwidden, W.R., Carter, N.D., Edwards, Y.H. (ed.): The Carbonic Anhydrases. New Horizons. Pp. 547-565. Birkhäuser Verlag, Basel – Boston – Berlin 2000. [Cyanobacteria; 98 ref.]

Krebs, M.P., Isenbarger, T.A.: Structural determinants of purple membrane assembly. – Biochim. biophys. Acta **1460**: 15-26, 2000. [81 ref.]

Kulandaivelu, G., Lingakumar, K.: Molecular targets of UV-B radiation in the photosynthetic membranes. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 364-378. Taylor & Francis, London – New York 2000. [87 ref.]

Kuroiwa, T.: The primitive red algae *Cyanidium caldarium* and *Cyanidioschyzon merolae* as model system for investivating the dividing apparatus of mitochondria and plastids. – Bioessays **20**: 344-354, 1998. [43 ref.]

Kuroiwa, T., Kuroiwa, H., Sakai, A., Takahashi, H., Toda, K., Itoh, R.: The division apparatus of plastids and mitochondria. – Int. Rev. Cytol. **181**: 1-41, 1998. [76 ref.]

Kutík, J.: The development of chloroplast structure during leaf ontogeny. – Photosynthetica **35**: 481- 505, 1998. [158 ref.]

Kuzek, D., Pace, R.J.: Probing the Mn oxidation states in the OEC. Insights from spectroscopic, computational and kinetic data. – Biochim. biophys. Acta **1503**: 123-137, 2001. [71 ref.]

Larcher, W.: Temperature stress and survival ability of Mediterranean sclerophyllous plants. – Plant Biosystems **134**: 279-295, 2001. [Ps; 106 ref.]

Lawlor, D.W.: Plant responses to global change: temperature and drought stress. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 193-207. Backhuys Publishers, Leiden – New York 1998. [Ps; 26 ref.]

Lebedev, N., Timko, M.P.: Protochlorophyllide photoreduction. – Photosynth. Res. **58**: 5-23, 1998. [159 ref.]

Leckie, C.P., McAinsh, M.R., Montgomery, L., Priestley, A.J., Staxen, I., Webb, A.A.R., Hetherington, A.M.: Second messengers in guard cells. – J. exp. Bot. **49**(Spec. Issue): 339-349, 1998. [120 ref.]

Leon, P., Arroyo, A., Mackenzie, S.: Nuclear control of plastid and mitochondrial development in higher plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 453-480, 1998. [Chloroplast; 185 ref.]

Leung, J., Giraudat, J.: Abscisic acid signal transduction. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 199-222, 1998. [Regulation of stomatal aperture; 165 ref.]

Lichtenthaler, H.K., Thomas, H.: The 1-deoxy-D-xylulose-5-phosphate pathway of isoprenoid biosynthesis in plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 47-65, 1999. [77 ref.]

Lin, G., Marino, B.D.V., Weig, Y., Adams, J., Tubiello, F., Berry, J.A.: An experimental and modeling study of responses in ecosystems carbon exchanges to increasing $CO_2$ concentrations using a tropical rainforest mesocosm. – Aust. J. Plant Physiol. **25**: 547-556, 1998. [31 ref.]

Logan, B.A., Demmig-Adams, B., Adams, W.W., III: Acclimation of photosynthesis to the environment. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 477-512. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [175 ref.]

Lorenz, R.T., Cysewski, G.R.: Commercial potential for *Haematococcus* microalgae as a natural source of astaxanthin. – Trends Biotech. **18**: 160-167, 2000. [50 ref.]

Lu, Z., Percy, R.G., Qualset, C.O., Zeiger, E.: Stomatal conductance predicts yield in irrigated Pima cotton and bread wheat grown at high temperatures. – J. exp. Bot. **49**(Spec. Issue): 453-460, 1998. [23 ref.]

Lugtenburg, J., de Groot, H.: Characterization of photosynthetic reaction centers with specific isotope labels. – Photosynth. Res. **55**: 241-245, 1998. [33 ref.]

Lüttge, U.: Crassulacean acid metabolism. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 136-149. Cambridge University Press, Cambridge – New York – Oakleigh 1998. [34 ref.]

MacColl, R.: Cyanobacterial phycobilisomes. – J. struct. Biol. **124**: 311- 334, 1998. [241 ref.]

Mackenzie, C., Choudhary, M., Larimer, F.W., Predki, P., Stilwagen, S., Armitage, J.P., Barber, R.D., Donohue, T.J., Hosler, J.P., Newman, J.E., Shapleigh, J.P., Sockett, R.E., Zeilstra-Ryalls, J., Kaplan, S.: The home stretch, a first analysis of the nearly completed genome of *Rhodobacter sphaeroides* 2.4.1. – Photosynth. Res. **70**: 19-41, 2001. [Ps; 74 ref.]

Manna, P., Chitnis, P.R.: Function and molecular genetics of Photosystem II. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 221-263. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [199 ref.]

Matile, P., Hörtensteiner, S.: Chlorophyll degradation. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 67-95, 1999. [189 ref.]

Matsuoka, M., Furbank, R.T., Fukayama, H., Miyao, M.: Molecular engineering of $C_4$ photosynthesis. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 297-314, 2001. [50 ref.]

Matsuoka, M., Nomura, M., Agarie, S., Miyao-Tokutomi, M., Ku, M.S.B.: Evolution of C4 photosynthetic genes and overexpression of maize C4 genes in rice. – J. Plant Res. **111**: 333-337, 1998. [12 ref.]

McClung, C.R.: Circadian rhythms in plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 139-162, 2001. [Ps; 164 ref.]

McCormick, P.V., Cairns, J., Jr.: Algal indicators of aquatic ecosystem condition and change. – In: Wang, W., Gorsuch, J.W., Hughes, J.S. (ed.): Plants for Environmental Studies. Pp. 177-207. CRC Press, Lewis Publishers, Boca Raton – New York 1997. [108 ref.]

Meeks, J.C., Elhai, J., Thiel, T., Potts, M., Larimer, F., Lamerdin, J., Predki, P., Atlas, R.: An overview of the genome of *Nostoc punctiforme*, a multicellular, symbiotic cyanobacterium. – Photosynth. Res. **70**: 85-106, 2001. [Ps; 99 ref.]

Melkozernov, A.N.: Excitation energy transfer in Photosystem I from oxygenic organisms. – Photosynth. Res. **70**: 129-153, 2001. [138 ref.]

Merchant, S., Dreyfuss, B.W.: Posttranslational assembly of photosynthetic metalloproteins. – Annu. Rev. Plant Physiol. Plant mol. Biol. **49**: 25-51, 1998. [136 ref.]

Mimuro, M., Kikuchi, H., Murakami, A.: Structure and function of phycobilisomes. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 104-135. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [81 ref.]

Mino, H., Kawamori, A.: EPR studies of the water oxidizing complex in the $S_1$ and the higher S states: the manganese cluster and $Y_Z$ radical. – Biochim. biophys. Acta **1503**: 112-122, 2001. [78 ref.]

Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 413-425. Taylor & Francis, London – New York 2000. [30 ref.]

Morgan, J.A., Rhodes, D.: Mathematical modeling of plant metabolic pathways. – Metabolic Eng. **4**: 80-89, 2002. [Ps; 93 ref.]

Morishige, D.T., Dreyfuss, B.W.: Light-harvesting complexes of higher plants. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 18-28. Cambridge University Press, Cambridge 1998. [31 ref.]

Morison, J.I.L.: Stomatal response to increased $CO_2$ concentration. – J. exp. Bot. **49**(Spec. Issue): 443-452, 1998. [42 ref.]

Mott, K.A., Buckley, T.N.: Stomatal heterogeneity. – J. exp. Bot. **49**(Spec. Issue): 407-417, 1998. [52 ref.]

Müller-Röber, B., Ehrhardt, T., Plesch, G.: Molecular features of stomatal guard cells. – J. exp. Bot. **49**(Spec. Issue): 293-304, 1998. [110 ref.]

Murata, N., Nishiyama, Y.: Molecular mechanisms of the low-temperature tolerance of the photosynthetic machinery. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 93-112. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore - Tokyo 1998. [79 ref.]

Neerken, S., Amesz, J.: The antenna reaction center complex of heliobacteria: composition, energy conversion and electron transfer. – Biochim. biophys. Acta **1507**: 278-290, 2001. [115 ref.]

Nishimura, M.: Molecular chaperones and temperature stress. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 83-91. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [Chloroplast; 39 ref.]

Nishiuchi, T., Iba, K.: Roles of plastid ω-3 fatty acid desaturases in defense response of higher plants. – J. Plant Res. **111**: 481-486, 1998. [40 ref.]

Nitschke, W., Mühlenhoff, U., Liebl, U.: Evolution. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 285-304. Cambridge University Press, Cambridge – New York – Oakleigh 1998. [28 ref.]

Niyogi, K.K.: Photoprotection revisited: Genetic and molecular approaches. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 333-359, 1999. [158 ref.]

Noctor, G., Foyer, C.H.: A re-evaluation of the ATP:NADPH budget during $C_3$ photosynthesis: a contribution from nitrate assimilation and its associated respiratory activity? – J. exp. Bot. **49**(Spec. Issue): 1895-1908, 1998. [88 ref.]

Nugent, J.H.A., Rich, A.M., Evans, M.C.W.: Photosynthetic water oxidation: towards a mechanism. – Biochim. biophys. Acta **1503**: 138-146, 2001. [80 ref.]

Nyholm, N., Peterson, H.G.: Laboratory bioassays with microalgae. – In: Wang, W., Gorsuch, J.W., Hughes, J.S. (ed.): Plants for Environmental Studies. Pp. 225-276. CRC Press, Lewis Publishers, Boca Raton – New York 1997. [198 ref.]

Ogawa, T., Katoh, H., Sonoda, M.: Molecular mechanisms of $CO_2$ concentration and proton extrusion in cyanobacteria. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 181-196. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [64 ref.]

Ohad, I., Sonoike, K., Andersson, B.: Photoinactivation of the two photosystems in oxygenic photosynthesis: mechanisms and regulations. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 293-309. Taylor & Francis, London – New York 2000. [75 ref.]

Ohkawa, H., Sonoda, M., Katoh, H., Ogawa, T.: The use of mutants in the analysis of the $CO_2$-concentrating mechanism in cyanobacteria. – Can. J. Bot. **76**: 1035-1042, 1998. [41 ref.]

Oliver, D.J.: Photorespiration and the $C_2$ cycle. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 173-182. Cambridge University Press, Cambridge 1998. [6 ref.]

Olson, J.M.: Chlorophyll organization and function in green photosynthetic bacteria. – Photochem. Photobiol. **67**: 61-75, 1998. [172 ref.]

Ono, T.: Metallo-radical hypothesis for photoassembly of $(Mn)_4$-cluster of photosynthetic oxygen evolving complex. – Biochim. biophys. Acta **1503**: 40-51, 2001. [111 ref.]

Osteryoung, K.W., McAndrew, R.S.: The plastid division machine. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 315-333, 2001. [124 ref.]

Osteryoung, K.W., Pyke, K.A.: Plastid division: evidence for a prokaryotically derived mechanism. – Curr. Opin. Plant Biol. **1**: 475-479, 1998. [41 ref.]

Padmasree, K., Raghavendra, A.S.: Interaction with respiration and nitrogen metabolism. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 197-211. Cambridge University Press, Cambridge 1998. [38 ref.]

Padmasree, K., Raghavendra, A.S.: Photorespiration and interaction between chloroplasts, mitochondria and peroxisomes. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 246-262. Taylor & Francis, London – New York 2000. [67 ref.]

Parry, M.A.J., Colliver, S.P., Madgwick, P.J., Paul, M.J.: Manipulation of photosynthetic metabolism. – In: Cunningham, C., Porter, A.J.R. (ed.): Recombinant Proteins from Plants: Production and Isolation of Clinically Useful Compounds. Pp. 229-249. Humana Press, Totowa 1998. [Ps; 15 ref.]

Paulsen, H.: Pigment ligation to proteins of the photosynthetic apparatus in higher plants. – Physiol. Plant. **100**: 760-768, 1997. [94 ref.]

Pearcy, R.W.: Acclimation to sun and shade. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 250-263. Cambridge University Press, Cambridge 1998. [36 ref.]

Peloquin, J.M., Britt, R.D.: EPR/ENDOR characterization of the physical and electronic structure of the OEC Mn cluster. – Biochim. biophys. Acta **1503**: 96-111, 2001. [59 ref.]

Piechulla, B.: Circadian expression of the light-harvesting complex protein genes in plants. – Chronobiol. int. **16**: 115-128, 1999. [65 ref.]

Pollock, C.J.: Resource use efficiency and crop performance: what is the link? – In: Foyer, C.H., Quick, W.P. (ed.): A Molecular Approach to Primary Metabolism in Higher Plants. Pp. 327-335. Taylor & Francis, London – Bristol 1997. [35 ref.]

Poluektov, O.G., Utschig, L.M., Tang, J., Dubinski, A.A.,

Schlesselmann, S., Thurnauer, M.C.: High-frequency EPR approach to the electron spin-polarization effects observed in the photosynthetic reaction centers. – Appl. magnetic Resonance **21**: 311-323, 2001. [43 ref.]

Pomeroy, L.R.: Primary production in the Arctic Ocean estimated from dissolved oxygen. – J. mar. Syst. **10**: 1-8, 1997. [51 ref.]

Poorter, H.: Do slow-growing species and nutrient-stressed plants respond relatively strongly to elevated $CO_2$? – Glob. Change Biol. **4**: 693-697, 1998. [40 ref.]

Porra, R.J., Pfündel, E.E., Engel, N.: Metabolism and function of photosynthetic pigments. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods. Pp. 85-126. UNESCO Publishing, Paris 1997. [156 ref.]

Pospíšil, P.: Mechanisms of non-photochemical chlorophyll fluorescence quenching in higher plants. – Photosynthetica **34**: 343-355, 1997. [98 ref.]

Pospíšilová, J., Čatský, J.: Development of water stress under increased atmospheric $CO_2$ concentration. – Biol. Plant. **42**: 1-24, 1999. [Ps; 154 ref.]

Preiss, J.: Modulation of starch synthesis. – In: Foyer, C.H., Quick, W.P. (ed.): A Molecular Approach to Primary Metabolism in Higher Plants. Pp. 81-104. Taylor & Francis, London – Bristol 1997. [88 ref.]

Prioul, J.-L., Thévenot, C.: Quantitative trait loci (QTLs) for analysis of physiological and biochemical responses to abiotic stress. – In: Hawkesford, M.J., Buchner, P. (ed.): Molecular Analysis of Plant Adaptation to the Environment. Pp. 81-101. Kluwer Academic Publishers, Dordrecht – Boston – London 2001. [Ps; 44 ref.]

Pritchard, S.G., Rogers, H.H., Prior, S.A., Peterson, C.M.: Elevated $CO_2$ and plant structure: a review. – Glob. Change Biol. **5**: 807-837, 1999. [157 ref.]

Putz, O., Scheibenbogen, K.: Photobioreactors: design and performance with respect to light energy input. – In: Scheper, T. (ed.): Bioprocess and Algae Reactor Technology Apoptosis. Pp. 123-152. Springer-Verlag, Berlin – Heidelberg – New York – Barcelona – Budapest – Hong Kong – London – Milan – Paris – Santa Clara – Singapore – Tokyo 1998. [167 ref.]

Pyke, K.A.: The genetic control of plastid division in higher plants. – Amer. J. Bot. **84**: 1017-1027, 1997. [59 ref.]

Quick, W.P., Neuhaus, H.E.: The regulation and control in photosynthetic carbon assimilation. – In: Foyer, C.H., Quick, W.P. (ed.): A Molecular Approach to Primary Metabolism in Higher Plants. Pp. 41-62. Taylor & Francis, London – Bristol 1997. [61 ref.]

Quinn, P.J.: Engineering frost resistance in plants by genetic manipulation. – In: Harwood, J.L. (ed.): Plant Lipid Biosynthesis. Fundamentals and Agricultural Applications. Pp. 155-183. Cambridge University Press, Cambridge – New York – Oakleigh 1998. [Chloroplast; 92 ref.]

Ramachandra Reddy, A., Gnanam, A.: Photosynthetic productivity prospects under $CO_2$-enriched atmosphere of the 21st century. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 342-363. Taylor & Francis, London – New York 2000. [156 ref.]

Ramachandra Reddy, A., Rama Das, V.S.: CAM photosynthesis. Ecophysiological and molecular strategies for survival. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 226-245. Taylor & Francis, London – New York 2000. [103 ref.]

Rao, I.M., Terry, N.: Photosynthetic adaptation to nutrient stress. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 379-397. Taylor & Francis, London – New York 2000. [127 ref.]

Rappaport, F., Lavergne, J.: Coupling of electron and proton transfer in the photosynthetic water oxidase. – Biochim. biophys. Acta **1503**: 246-259, 2001. [88 ref.]

Ratcliffe, R.G., Shachar-Hill, Y.: Probing plant metabolism with NMR. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 499-526, 2001. [Ps; 165 ref.]

Raval, M.K., Rath, L.S.: Prediction of structure of antenna proteins of photosystem II. – Indian J. Biochem. Biophys. **35**: 91-96, 1998. [24 ref.]

Rawsthorne, S., Bauwe, H.: $C_3$-$C_4$ intermediate photosynthesis. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 150-162. Cambridge University Press, Cambridge 1998. [38 ref.]

Reid, R.J., Smith, F.A.: The cytoplasmic pH stat. – In: Rengel, Z. (ed.): Handbook of Plant Growth. pH as the Master Variable. Pp. 49-71. Marcel Dekker, New York – Basel 2002. [CAM; 63 ref.]

Renger, G.: Mechanistic and structural aspects of photosynthetic water oxidation. – Physiol. Plant. **100**: 828-841, 1997. [93 ref.]

Renger, G.: Photosystem II and water oxidation in cyanobacteria, algae and higher plants. – In: Gräber, P., Milazzo, G. (ed.): Bioenergetics. Pp. 310-358. Birkhäuser Verlag, Basel – Boston – Berlin 1997. [18 ref.]

Renger, G.: Basic principles of photophysics and photochemistry. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 52-90. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [Ps, Chl, Car; 63 ref.]

Renger, G.: Mechanism of photosynthetic water cleavage. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 292-329. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [120 ref.]

Renger, G.: Photosynthetic water oxidation to molecular oxygen: apparatus and mechanism. – Biochim. biophys. Acta **1503**: 210-228, 2001. [160 ref.]

Rigby, S.E.J., Evans, M.C.W., Heathcote, P.: Electron nuclear double resonance (ENDOR) spectroscopy of radicals in photosystem I and related Type 1 photosynthetic reaction centres. – Biochim. biophys. Acta **1507**: 247-259, 2001. [81 ref.]

Ritter, M.: Statistical methods in plant environmental studies. – In: Wang, W., Gorsuch, J.W., Hughes, J.S. (ed.): Plants for Environmental Studies. Pp. 127-139. CRC Press, Lewis Publishers, Boca Raton – New York 1997. [47 ref.]

Robinson, C., Hynds, P.J., Robinson, D., Mant, A.: Multiple pathways for the targeting of thylakoid proteins in chloroplasts. – Plant mol. Biol. **38**: 209-221, 1998. [84 ref.]

Robinson, M.F., Heath, J., Mansfield, T.A.: Disturbances in stomatal behaviour caused by air pollutants. – J. exp. Bot. **49**(Spec. Issue): 461-469, 1998. [52 ref.]

Roos, W.: Confocal pH topography in plant cells: Shifts of proton distribution involved in plant signaling. – In: Rengel,

Z. (ed.): Handbook of Plant Growth. pH as the Master Variable. Pp. 73-106. Marcel Dekker, New York – Basel 2002. [Chl; 129 ref.]

Ruettinger, W., Dismukes, G.C.: Synthetic catalysts for non-biological water oxidation: Comparison to the photosynthetic water oxidation complex. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 330-363. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [76 ref.]

Sabate, S., Sala, A., Gracia, C.A.: Leaf traits and canopy organization. – In: Roda, F., Retana, J., Gracia, C.A., Bellot, J. (ed.): Ecology of Mediterranean Evergreen Oak Forests. Pp. 121-133. Springer-Verlag, Berlin – Heidelberg 1999. [Chl, optical properties; 46 ref.]

Sakaki, T.: Photochemical oxidants: toxicity. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 117-129. Backhuys Publishers, Leiden – New York 1998. [Chl; 76 ref.]

Sandmann, G., Scheer, H.: Chloroplast pigments: chlorophylls and carotenoids. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 44-57. Cambridge University Press, Cambridge 1998. [42 ref.]

Satoh, K.: Creation of photo-tolerant mutants of a cyanobacterium, *Synechocystis* sp. PCC 6803, by *in vitro* random mutagenesis of the *psbA* gene. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 3-14. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [34 ref.]

Saugier, B., Mousseau, M.: The direct effect of $CO_2$ enrichment on the growth of trees and forests. – In: Kohlmaier, G.H., Weber, M., Houghton, R.A. (ed.): Carbon Dioxide Mitigation in Forestry and Wood Industry. Pp. 323-339. Springer, Berlin – Heidelberg – New York – Barcelona – Budapest – Hong Kong – London – Milan – Paris – Santa Clara – Singapore – Tokyo 1998. [Ps; 51 ref.]

Sayed, O.H.: Crassulacean acid metabolism 1975-2000, a check list. – Photosynthetica **39**: 339-352, 2001. [178 ref.]

Scandalios, J.G.: Molecular responses to oxidative stress. – In: Hawkesford, M.J., Buchner, P. (ed.): Molecular Analysis of Plant Adaptation to the Environment. Pp. 181-208. Kluwer Academic Publishers, Dordrecht – Boston – London 2001. [Ps; 64 ref.]

Scheller, H.V., Jensen, P.E., Haldrup, A., Lunde, C., Knoetzel, J.: Role of subunits in eukaryotic Photosystem I. – Biochim. biophys. Acta **1507**: 41-60, 2001. [155 ref.]

Schnepf, E., Elbrächter, M.: Dinophyte chloroplasts and phylogeny – A review. – Grana **38**: 81-97, 1999. [128 ref.]

Schreiber, U., Bilger, W., Hormann, H., Neubauer, C.: Chlorophyll fluorescence as a diognostic tool: basics and some aspects of practical relevance. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 320-336. Cambridge University Press, Cambridge – New York – Oakleigh 1998. [52 ref.]

Schroeder, J.I., Allen, G.J., Hugouvieux, V., Kwak, J.M., Waner, D.: Guard cell signal transduction. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 627-658, 2001. [216 ref.]

Schultz, G.: Assimilation of non-carbohydrate compounds. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 183-196. Cambridge University Press, Cambridge 1998. [58 ref.]

Schwartzbach, S.D., Osafune, T., Löffelhardt, W.: Protein import into cyanelles and complex chloroplasts. – Plant mol. Biol. **38**: 247-263, 1998. [91 ref.]

Seely, G.R., Tollin, G.: Models of the light reaction of photosynthesis. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 91-103. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [40 ref.]

Šesták, Z., Čatský, J.: Bibliography of reviews and methods of photosynthesis – 85. – Photosynthetica **39**: 615-640, 2001. [699 ref.]

Šesták, Z., Šiffel, P.: Leaf-age related differences in chlorophyll fluorescence. – Photosynthetica **33**: 347-369, 1997. [149 ref.]

Sétif, P.: Ferredoxin and flavodoxin reduction by photosystem I. – Biochim. biophys. Acta **1507**: 161-179, 2001. [90 ref.]

Settles, A.M., Martienssen, R.: Old and new pathways of protein export in chloroplasts and bacteria. – Trends Cell Biol. **8**: 494-501, 1998. [67 ref.]

Sharkey, T.D.: Photosynthetic carbon reduction. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 111-122. Cambridge University Press, Cambridge – New York – Oakleigh 1998. [15 ref.]

Sharkey, T.D., Yeh, S.: Isoprene emission from plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **52**: 407-436, 2001. [Ps, stomata; 174 ref.]

Sheen, J. $C_4$ gene expression. – Annu. Rev. Plant Physiol. Plant mol. Biol. **50**: 187-217, 1999. [163 ref.]

Sheoran, I.S., Singh, R.: Carbon dioxide metabolism in photosynthesis. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 430-473. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [38 ref.]

Sherman, L.A., Meunier, P., Colón-López, M.S.: Diurnal rhythms in metabolism: A day in the life of a unicellular, diazotrophic cyanobacterium. – Photosynth. Res. **58**: 25-42, 1998. [Chl fluorescence, electron transport; 90 ref.]

Shinkarev, V.P.: The general kinetic model of electron transfer in photosynthetic reaction centers activated by multiple flashes. – Photochem. Photobiol. **67**: 683-699, 1998. [90 ref.]

Shively, J.M., van Keulen, G., Meijer, W.G.: Something from almost nothing: Carbon dioxide fixation in chemoautotrophs. – Annu. Rev. Microbiol. **52**: 191-230, 1998. [188 ref.]

Sigfridsson, K.: Plastocyanin, an electron-transfer protein. – Photosynth. Res. **57**: 1-28, 1998. [191 ref.]

Sinclair, T.R., Muchow, R.C.: Radiation use efficiency. – Adv. Agron. **65**: 215-265, 1999. [130 ref.]

Singh, M.: Turnover of D1 protein encoded by *psbA* gene in higher plants and cyanobacteria sustains photosynthetic efficiency to maintain plant productivity under photoinhibitory irradiance. – Photosynthetica **38**: 161-169, 2000. [83 ref.]

Singh, R.: $C_3/C_4$ carbon metabolism and regulation. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 169-195. Taylor & Francis, London – New York 2000. [99 ref.]

Sinha, S.K.: P.V. Sane: a profile. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 1-8. Taylor & Francis, London – New York 2000. [Ps; 59 ref.]

Smith, F.W.: Plant responses to nutritional stresses. – In: Hawkesford, M.J., Buchner, P. (ed.): Molecular Analysis of Plant Adaptation to the Environment. Pp. 249-269. Kluwer Academic Publishers, Dordrecht – Boston – London 2001. [Ps; 96 ref.]

Smith, W.K., Vogelmann, T.C., DeLucia, E.H., Bell, D.T., Shepherd, K.A.: Leaf form and photosynthesis. – BioScience **47**: 785-793, 1997. [70 ref.]

Snel, J.F.H., Vredenberg, W.J.: The electrochemical properties of the thylakoid membrane. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 367-388. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [41 ref.]

Soll, J., Tien, R.: Protein translocation into and across the chloroplastic envelope membranes. – Plant mol. Biol. **38**: 191-207, 1998. [132 ref.]

Srivastava, H.S.: Metabolic responses of plants to nitrogen oxides. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 65-80. Backhuys Publishers, Leiden 1998. [Ps; 92 ref.]

Stemler, A.J.: Bicarbonate and photosynthetic oxygen evolution: An unwelcome legacy of Otto Warburg. – Indian J. exp. Bot. **36**: 841-848, 1998. [63 ref.]

Stevens, D.R., Purton, S.: Genetic engineering of eukaryotic algae: Process and prospects. – J. Phycol. **33**: 713-722, 1997. [Ps, Chl, Car; 90 ref.]

Stewart, D.H., Brudvig, G.W.: Cytochrome $b_{559}$ of photosystem II. – Biochim. biophys. Acta **1367**: 63-87, 1998. [160 ref.]

Sticht, H., Rosch, P.: The structure of iron-sulfur proteins. – Progr. Biophys. mol. Biol. **70**: 95-136, 1998. [Ferredoxin; 296 ref.]

Strotmann, H., Shavit, N.: Photophosphorylation. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 389-429. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [121 ref.]

Stulen, I., Den Hertog, J., Fonseca, F., Steg, K., Posthumus, F., Van der Kooij, T.A.W., De Kok, L.J.: Impact of elevated atmospheric $CO_2$ on plants. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 167-179. Backhuys Publishers, Leiden – New York 1998. [Growth analysis; 51 ref.]

Sugiura, M., Hirose, T., Sugita, M.: Evolution and mechanism of translation in chloroplasts. – Annu. Rev. Genet. **32**: 437-459, 1998. [128 ref.]

Sugiyama, T.: Nitrogen-responsive expression of $C_4$ photosynthesis genes in maize. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 167-180. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [56 ref.]

Sundqvist, C., Dahlin, C.: With chlorophyll pigments from prolamellar bodies to light-harvesting complexes. – Physiol. Plant. **100**: 748-759, 1997. [149 ref.]

Suzuki, J.Y., Bollivar, D.W., Bauer, C.E.: Genetic analysis of chlorophyll biosynthesis. – Annu. Rev. Genet. **31**: 61-89, 1997. [128 ref.]

Szczepaniak, A., Gubernator, B., Króliczewski, J., Łaczmański, Ł.: Targeting of proteins into and within the chloroplast. – Acta Physiol. Plant. **20**: 437-451, 1998. [124 ref.]

Takahashi, Y.: Chloroplast-encoded small subunits of the three multiprotein complexes in photosynthetic electron transport. – J. Plant Res. **111**: 101-111, 1998. [64 ref.]

Takeba, G., Kozaki, A.: Photorespiration is an essential mechanism for the protection of $C_3$ plants from photooxidation. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 15-36. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [77 ref.]

Talbott, L.D., Zeiger, E.: The role of sucrose in guard cell osmoregulation. – J. exp. Bot. **49**(Spec. Issue): 329-337, 1998. [58 ref.]

Tanaka, K., Igarashi, T., Aono, M., Kubo, A.: Photooxidative stress sensitivity of transgenic plants containing altered levels of active oxygen scavenging enzymes. – In: Satoh, K., Murata, N. (ed.): Stress Responses of Photosynthetic Organisms. Molecular Mechanisms and Molecular Regulations. Pp. 69-79. Elsevier, Amsterdam – Lausanne – New York – Oxford – Shannon – Singapore – Tokyo 1998. [25 ref.]

Taylor, W.C., Rosche, E., Marshall, J.S., Ali, S., Chastain, C.J., Chitty, J.A.: Diverse mechanisms regulate the expression of genes coding for $C_4$ enzymes. – Aust. J. Plant Physiol. **24**: 437-442, 1997. [16 ref.]

Teramura, A.H.: Terrestrial plant responses to a changing solar UV-B radiation environment. – In: De Kok, L.J., Stulen, I. (ed.): Responses of Plant Metabolism to Air Pollution and Global Change. Pp. 209-214. Backhuys Publishers, Leiden – New York 1998. [Ps; 35 ref.]

Tevini, M.: UV-effects on plants. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 588-613. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [Ps, Chl; 132 ref.]

Tomoaia-Cotisel, M., Quinn, P.J.: Biophysical properties of carotenoids. – In: Quinn, P.J., Kagan, V.E. (ed.): Subcellular Biochemistry. Vol. 30. Fat-Soluble Proteins. Pp. 219-242. Plenum Press, New York 1998. [70 ref.]

Tortell, P.D.: Evolutionary and ecological perspectives on carbon acquisition in phytoplankton. – Limnol. Oceanogr. **45**: 744-750, 2000. [55 ref.]

Tripathy, B.C., Singhal, G.S.: Oxidative stress in photodynamic herbicidal action of 5-aminolevulinic acid. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 668-688. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [Chl; 49 ref.]

Tuteja, N., Tewari, K.K.: Molecular biology of chloroplast genome. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 691-738. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [229 ref.]

Tyagi, A.K.: Regulation of plastid gene expression. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 739-751. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [42 ref.]

Tyagi, A.K., Dhingra, A., Raghuvanshi, S.: Light-regulated expression of photosynthesis-related genes. – In: Yunus, M.,

Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 324-341. Taylor & Francis, London – New York 2000. [143 ref.]

van der Est, A.: Light-induced spin polarization in type I photosynthetic reaction centres. – Biochim. biophys. Acta **1507**: 212-225, 2001. [89 ref.]

Vassiliev, I.R., Antonkine, M.L., Golbeck, J.H.: Iron-sulfur clusters in type I reaction centers. – Biochim. biophys. Acta **1507**: 139-160, 2001. [128 ref.]

Vener, A.V., Ohad, I., Andersson, B.: Protein phosphorylation and redox sensing in chloroplast thylakoids. – Curr. Opin. Plant Biol. **1**: 217-223, 1998. [49 ref.]

Vernet, M., Kozlowski, W.: Ultraviolet radiation and the Antarctic coastal marine ecosystem. - In: Cockell, C.S., Blaustein, A.R. (ed.): Ecosystems, Evolution, and Ultraviolet Radiation. Pp. 170-194. Springer-Verlag, New York – Berlin – Heidelberg 2001. [Primary production, PAR; 105 ref.]

Vonshak, A.: *Spirulina*: growth, physiology and biochemistry. – In: Vonshak, A. (ed.): *Spirulina platensis* (*Arthrospira*). Physiology, Cell-Biology and Biotechnology. Pp. 43-65. Taylor & Francis, London – Bristol 1997. [Ps; 53 ref.]

Vothknecht, U.C., Westhoff, P.: Biogenesis and origin of thylakoid membranes. – Biochim. biophys. Acta **1541**: 91-101, 2001. [102 ref.]

Vrettos, J.S., Limburg, J., Brudwig, G.W.: Mechanism of photosynthetic water oxidation: combining biophysical studies of photosystem II with inorganic model chemistry. – Biochim. biophys. Acta **1503**: 229-245, 2001. [150 ref.]

Wakasugi, T., Sugita, M., Tsudzuki, T., Sugiura, M.: Updated gene map of tobacco chloroplast DNA. – Plant mol. Biol. Rep. **16**: 231-241, 1998. [4 ref.]

Wakasugi, T., Tsudzuki, T., Sugiura, M.: The genomics of land plant chloroplasts: Gene content and alteration of genomic information by RNA editing. – Photosynth. Res. **70**: 107-118, 2001. [83 ref.]

Webber, A.N., Lubitz, W.: P700: the primary electron donor of photosystem I. – Biochim. biophys. Acta **1507**: 61-79, 2001. [95 ref.]

Whitehead, D.: Regulation of stomatal conductance and transpiration in forest canopies. – Tree Physiol. **18**: 633-644, 1998. [119 ref.]

Whitmarsh, J.: Electron transport and energy transduction. – In: Raghavendra, A.S. (ed.): Photosynthesis. A Comprehensive Treatise. Pp. 87-107. Cambridge University Press, Cambridge 1998. [58 ref.]

Whitmarsh, J., Govindjee: The photosynthetic process. – In: Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.-D., Govindjee (ed.): Concepts in Photobiology. Pp. 11-51. Kluwer Acad. Publ., Boston – Dordrecht – London; Narosa Publ. House, Delhi – Madras – Bombay – Calcutta – London 1999. [101 ref.]

Wikström, M.: Proton translocation by bacteriorhodopsin and heme-copper oxidases. – Curr. Opin. Plant Biol. **8**: 480-488, 1998. [68 ref.]

Wildner, G.F.: Molecular aspects of Rubisco specificity. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 213-225. Taylor & Francis, London – New York 2000. [48 ref.]

Winicov, I.: Molecular strategies to overcome salt stress in agriculture. – In: Hawkesford, M.J., Buchner, P. (ed.): Molecular Analysis of Plant Adaptation to the Environment. Pp. 103-129. Kluwer Academic Publishers, Dordrecht – Boston – London 2001. [Ps; 126 ref.]

Wolfe, D.W., Gifford, R.M., Hilbert, D., Luo, Y.: Integration of photosynthetic acclimation to $CO_2$ at the whole-plant level. – Glob. Change Biol. **4**: 879-893, 1998. [139 ref.]

Woodward, F.I.: Do plants really need stomata? – J. exp. Bot. **49**(Spec. Issue): 471-480, 1998. [40 ref.]

Wright, S.W., Jeffrey, S.W.: High-resolution HPLC system for chlorophylls and carotenoids of marine phytoplankton. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography. Guidelines to Modern Methods. Pp. 327-341. UNESCO Publishing, Paris 1997. [27 ref.]

Wullschleger, S.D., Meinzer, F.C., Vertessy, R.A.: A review of whole-plant water use studies in trees. – Tree Physiol. **18**: 499-512, 1998. [113 ref.]

Wünschiers, R.: Light dependent production of hydrogen gas by green algae. The future energy carrier in the classroom? – J. biol. Educ. **34**: 214-217, 2000. [Ps; 10 ref.]

Xiong, J., Fischer, W.M., Inoue, K., Nakahara, M., Bauer, C.E.: Molecular evidence for the early evolution of photosynthesis. – Science **289**: 1724-1730, 2000. [30 ref.]

Xiong, J., Subramaniam, S., Govindjee: A knowledge-based three dimensional model of the Photosystem II reaction center of *Chlamydomonas reinhardtii*. – Photosynth. Res. **56**: 229-254, 1998. [126 ref.]

Xu, W., Tang, H., Wang, Y., Chitnis, P.R.: Proteins of the cyanobacterial photosystem I. – Biochim. biophys. Acta **1507**: 32-40, 2001. [70 ref.]

Yordanov, I., Velikova, V., Tsonev, A.: Plant responses to drought, acclimation, and stress tolerance. – Photosynthetica **38**: 171-186, 2000. [156 ref.]

Yurkov, V.V., Beatty, J.T.: Aerobic anoxygenic phototrophic bacteria. – Microbiol. mol. Biol. Rev. **62**: 695-724, 1998. [236 ref.]

Zeiger, E., Zhu, J.: Role of zeaxanthin in blue light photoreception and the modulation of light-$CO_2$ interactions in guard cells. – J. exp. Bot. **49**(Spec. Issue): 433-442, 1998. [78 ref.]

Zhang, H., Tajmir-Riahi, H.A., Carpentier, R.: The structure and function of the photosynthetic apparatus studied by Fourier transform infrared spectroscopy. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 426-444. Taylor & Francis, London – New York 2000. [74 ref.]

## METHODOLOGICAL PAPERS

### A. Energy transformation, electron transfer, C fixation, and related methods

Åhrling, K.A., Smith, P.J., Pace, R.J.: Nature of the Mn centers in photosystem II. Modeling and behavior of the $g = 4$ resonances and related signals. – J. amer. chem. Soc. **120**: 13202-13214, 1998.

Åhrling, K.A., Styring, S.: Tha manganese cluster in photosystem II investigated by EPR spectroscopy. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp.

148-163. Taylor & Francis, London – New York 2000. [Review; 64 ref.]

Almela, L., Fernández-López, J.A., Roca, M.J.: High-performance liquid chromatographic screening of chlorophyll derivatives produced during fruit storage. – J. Chromatogr. A **870**: 483-489, 2000.

Anati, R., Adir, N.: Crystallization of dimers of the manganese-stabilizing protein of Photosystem II. – Photosynth. Res. **64**: 167-177, 2000.

Anderson, J.M., Park, Y.-I., Chow, W.S.: Unifying model for the photoinactivation of Photosystem II *in vivo* under steady-state photosynthesis. – Photosynth. Res. **56**: 113, 1998.

Andreeva, A., Velitchkova, M.: Polarized fluorescence spectroscopy of oriented isolated spinach Photosystem I particles. – Photosynth. Res. **65**: 15-28, 2000.

Andría, J.R., Vergara, J.J., Pérez-Lloréns, J.L.: Fractionation of carbonic anhydrase activity in *Gracilaria sp.* (Rhodophyta) and *Enteromorpha intestinalis* (Chlorophyta): changes in the extracellular activity in response to inorganic carbon levels. – Aust. J. Plant Physiol. **27**: 1161-1167, 2000. [Model of function of carbonic anhydrase.]

Angerhofer, A., Bornhäuser, F., Aust, V., Hartwich, G., Scheer, H.: Triplet energy transfer in bacterial photosynthetic reaction centres. – Biochim. biophys. Acta **1365**: 404-420, 1998. [Model.]

Ashton, A.R.: A simple procedure for purifying the major chloroplast fructose-1,6-bisphosphatase from spinach (*Spinacia oleracea*) and characterization of its stimulation by sub-femtomolar mercuric ions. – Arch. Biochem. Biophys. **357**: 207-224, 1998.

Balakrishnan, G., Babaei, A., McQuillan, A.J., Umapathy, S.: Resonance Raman and infrared spectral studies on radical anions of model photosynthetic reaction center quinones (naphthoquinone derivatives). – J. biomol. Struct. Dynamics **16**: 123-131, 1998.

Balzani, V., Credi, A., Venturi, M.: Photoprocesses. – Curr. Opin. chem. Biol. **1**: 506-513, 1997. [Models of fundamental steps of Ps; review, 49 ref.]

Barber, J.: Photosystem two. – Biochim. biophys. Acta **1365**: 269-277, 1998.

Bayoudh, S., Mehta, M., Rubinsztein-Dunlop, H., Heckenberg, N.R., Critchley, C.: Micromanipulation of chloroplasts using optical tweezers. – J. Microsc. **203**: 214-222, 2001.

Beakes, G.W., Cleary, A.L.: Visualization of plastids and lipophilic components in living colonies of a wild strain of the hydrocarbon-forming green alga *Botryococcus* by laser scanning confocal microscopy. – J. appl. Phycol. **10**: 435-446, 1999.

Beckmann, D., Müller, A., Gruber, R.: Immobilization of bacteriorhodopsin in liquid crystals. – Biosens. Bioelectron. **12**: 901-904, 1997.

Berg, D., Maier, K., Otteken, D., Terjung, F.: Picosecond fluorescence decay studies on water-stressed pea leaves: energy transfer and quenching processes in photosystem 2. – Photosynthetica **34**: 97-106, 1997.

Berger, G., Girault, G., Pezennec, S., Zimmermann, J.L.: The use of HPLC for the study of chloroplast ATPase enzymatic activity and ATP binding. – J. Liquid Chromatogr. relat. Technol. **21**: 1925-1955, 1998.

Berger, G., Girault, G., Zimmermann, J.-L.: Cooperativity between the enzymatic sites of $F_1$-ATPase revisited by the use of HPLC methods. – J. Bioenerg. Biomembr. **30**: 543-553, 1998.

Berger, G., Girault, G., Zimmermann, J.L.: Use of HPLC for the study of ADP binding to chloroplast ATPase. I. Influence of experimental conditions and proposition of mechanism. – J. Liquid Chromatogr. relat. Technol. **23**: 1627-1638, 2000.

Berger, G., Girault, G., Zimmermann, J.L.: Use of HPLC for the study of ADP binding to chloroplast ATPase. II. Its effect on enzymatic activity. – J. Liquid Chromatogr. relat. Technol. **23**: 1639-1655, 2000.

Bernacchi, C.J., Singsaas, E.L., Pimentel, C., Portis A.R., Jr., Long, S.P.: Improved temperature response functions for models of Rubisco-limited photosynthesis. – Plant Cell Environ. **24**: 253-259, 2001.

Berry, S., Rumberg, B.: Kinetic modeling of the photosynthetic electron transport chain. – Bioelectrochemistry **53**: 35-53, 2000.

Berthélemy, X., Bouvier, G., Radunz, A., Docquier, S., Schmid, G.H., Franck, F.: Localization of NADPH-protochlorophyllide reductase in plastids of barley at different greening stages. – Photosynth. Res. **64**: 63-76, 2000. [Preparation of membrane materials from chloroplasts.]

Betancourt, F.M.H., Glaeser, R.M.: Chemical and physical evidence for multiple functional steps comprising the M state of the bacteriorhodopsin photocycle. – Biochim. biophys. Acta **1460**: 106-118, 2000. [93 ref.]

Blasius, B., Beck, F., Lüttge, U.: Oscillatory model of crassulacean acid metabolism: structural analysis and stability boundaries with a discrete hysteresis switch. – Plant Cell Environ. **21**: 775-784, 1998.

Bond, P., Donkin, M., Moate, R.: The development and evaluation of freeze-fracture/cytoplasmic maceration for the SEM to investigate algal ultrastructure. – Micron **28**: 433-438, 1997.

Booth, P.J.: Unravelling the folding of bacteriorhodopsin. – Biochim. biophys. Acta **1460**: 4-14, 2000. [Model; review, 64 ref.]

Bricker, T.M., Morvart, J., Masri, N., Sutton, H.M., Frankel, L.K.: Isolation of a highly active Photosystem II preparation from *Synechocystis* 6803 using a histidine-tagged mutant of CP 47. – Biochim. biophys. Acta **1409**: 50-57, 1998.

Bricker, T.M., Prevost, M., Vu, V., Laborde, S., Womack, J., Frankel, L.K.: Isolation of lumenal proteins from spinach thylakoid membranes by Triton X-114 phase partitioning. – Biochim. biophys. Acta **1503**: 350-356, 2001.

Bromand, S., Whalen, J.K., Janzen, H.H., Schjoerring, J.K., Ellert, B.H.: A pulse-labelling method to generate $^{13}C$-enriched plant materials. – Plant Soil **235**: 253-257, 2001.

Bukhov, N.G., Heber, U., Wiese, C., Shuvalov, V.A.: Energy dissipation in photosynthesis: Does the quenching of chlorophyll fluorescence originate from core antenna complexes of photosystem II or from the reaction center? – Planta **212**: 749-758, 2001. [Model of electron transport and fluorescence emission.]

Bunce, J.A.: Acclimation of photosynthesis to temperature in eight cool and warm climate herbaceous $C_3$ species: Temperature dependence of parameters of a biochemical photosynthesis model. – Photosynth. Res. **63**: 59-67, 2000.

Bustamante, C., Rivetti, C., Keller, D.J.: Scanning force microscopy under aqueous solutions. – Curr. Opin. struct. Biol. **7**: 709-716, 1997. [Bacteriorhodopsin; review, 35 ref.]

Carrel, T.G., Tyryshkin, A.M., Dismukes, G.C.: An evaluation of structural models for the photosynthetic water-oxidizing complex derived from spectroscopic and X-ray diffraction signatures. – J. biol. inorg. Chem. **7**: 2-22, 2002.

Casazza, A.P., Tarantino, D., Soave, C.: Preparation and functional characterization of thylakoids from *Arabidopsis thaliana*. – Photosynth. Res. **68**: 175-180, 2001.

Chekalyuk, A.M., Hoge, F.E., Wright, C.W., Swift, R.N.: Short-pulse pump-and-probe technique for airborne laser assessment of Photosystem II photochemical characteristics. – Photosynth. Res. **66**: 34-44, 2000.

Chekalyuk, A.M., Hoge, F.E., Wright, C.W., Swift, R.N., Yungel, J.K.: Airborne test of laser pump-and-probe technique for assessment of phytoplankton photochemical characteristics. – Photosynth. Res. **66**: 45-56, 2000.

Chen, L.-S., Nose, A.: An improved method for extraction and measurement of the inorganic pyrophosphate in leaves of crassulacean acid metabolism (CAM) plants. – New Prod. Sci. **4**: 15-19, 2001.

Choi, H.-G., Min, J., Han, K.-K., Choi, J.-W., Lee, W.H.: Photoelectric conversion of bacteriorhodopsin films fabricated by self-assembly technique. – Synth. Metals **117**: 141-143, 2001.

Cleland, R.E.: Voltammetric measurement of the plastoquinone redox state in isolated thylakoids. – Photosynth. Res. **58**: 183-192, 1998.

Clements, L.A.J., Jackson, K.E.: Visualization of the light & dark reactions of photosynthesis through dynamic demonstrations. – Amer. Biol. Teach. **60**: 601-605, 1998.

Corpas, F.J., Barroso, J.B., del Río, L.A.: Peroxisomes as a source of reactive oxygen species and nitric oxide signal molecules in plant cells. – Trends Plant Sci. **6**: 145-150, 2001.

Dastmalchi, S., Morris, M.B., Church, W.B.: Modeling of the structural features of integral-membrane proteins using reverse-environment prediction of integral membrane protein structure (REPIMPS). – Protein Sci. **10**: 1529-1538, 2001. [Photosynthetic reaction centres, bacteriorhodopsin.]

De las Rivas, J., Heredia, P.: Structural predictions on the 33 kDa extrinsic protein associated to the oxygen evolving complex of photosynthetic organisms. – Photosynth. Res. **61**: 11-21, 1999. [Model.]

de Paula, M.H., Vinha, C.A., de Arruda Cortez, M.A., Placência, S.: Determination of photochemical loss in leaves by an open-ended photothermal cell. – Biochim. biophys. Acta **1321**: 179-182, 1997.

Denkov, N.D., Yoshimura, H., Kouyama, T., Walz, J., Nagayama, K.: Electron cryomicroscopy of bacteriorhodopsin vesicles: Mechanism of vesicle formation. – Biophys. J. **74**: 1409-1420, 1998.

Dioumaev, A.K.: Evaluation of intrinsic chemical kinetics and transient product spectra from time-resolved spectroscopic data. – Biophys. Chem. **67**: 1-25, 1997. [Halorhodopsin.]

Dolashka-Angelova, P., Ali, S.A., Demirevska-Kepova, K., Stoeva, S., Voelter, W.: Purification, characterization and thermostability of ribulose 1,5-bisphosphate carboxylase-oxygenase from barley leaves. – Z. Naturforsch. **55c**: 611-619, 2000.

Dubinskiĭ, A.Yu., Tikhonov, A.N.: Matematicheskaya model' tilakoida kak raspredelennoĭ geterotrofnoĭ sistemy ėlektronnogo i protonnogo transporta. [Mathematical model of thylakoid as the distributed heterogeneous system of electron and proton transport.] – Biofizika **42**: 644-661, 1997. [In R, ab: E.]

Ducobu, H., Huisman, J., Jonker, R.R., Mur, L.R.: Competition between a prochlorophyte and a cyanobacterium under various phosphorus regimes: Comparison with the Droop model. – J. Phycol. **34**: 467-476, 1998.

Durrant, J.R., Dekker, J.P., Kwa, S.L.S., van Grondelle, R., Barber, J., Porter, G., Klug, D.R.: Trapping of excitation energy by photosystem two reaction centres: Is P680 a multimer? – Solar Energy Mat. Solar Cells **38**: 135-138, 1995. [Model.]

Earl, H.J., Tollenaar, M.: Relationship between thylakoid electron transport and photosynthetic $CO_2$ uptake in leaves of three maize (*Zea mays* L.) hybrids. – Photosynth. Res. **58**: 245-257, 1998.

Eickelhoff, C., Dekker, J.P., Boekema, E.J.: Characterization by electron microscopy of dimeric Photosystem II core complexes from spinach with and without CP43. – Biochim. biophys. Acta **1321**: 10-20, 1997.

Enami, I., Yoshihara, S., Tohri, A., Okumura, A., Ohta, H., Shen, J.-R.: Cross-reconstitution of various extrinsic proteins and photosystem II complexes from cyanobacteria, red algae and higher plants. – Plant Cell Physiol. **41**: 1354-1364, 2000.

Espeland, E.M., Wetzel, R.G.: Effects of photosynthesis on bacterial phosphatase production in biofilms. – Microbial Ecol. **42**: 328-337, 2001. [Laminar-flow cell.]

Evron, Y., McCarty, R.E.: Simultaneous measurement of ΔpH and electron transport in chloroplast thylakoids by 9-aminoacridine fluorescence. – Plant Physiol. **124**: 407-414, 2000.

Facciotti, M.T., Rouhani, S., Burkard, F.T., Betancourt, F.M., Downing, K.H., Rose, R.B., McDermott, G., Glaeser, R.M.: Structure of an early intermediate in the M-state phase of the bacteriorhodopsin photocycle. – Biophys. J. **81**: 3442-3455, 2001. [Workstation used for trapping bacteriorhodopsin crystals.]

Farquhar, G.D., Caemmerer, S. von, Berry, J.A.: Models of photosynthesis. – Plant Physiol. **125**: 42-45, 1995. [Review, 20 ref.]

Ferreira, R.B., Esquível, M.G., Teixeira, A.R.: An accurate method to quantify ribulose bisphosphate carboxylase content in plant tissue. – Plant Cell Environ. **23**: 1329-1340, 2000.

Francke, C., Permentier, H.P., Franken, E.M., Neerken, S., Amesz, J.: Isolation and properties of photochemically active reaction center complexes from the green sulfur bacterium *Prosthecochloris aestuarii*. – Biochemistry **36**: 14167-14172, 1997.

Frandas, A., Jalink, H., van der Schoor, R.: Low frequency photoacoustics for monitoring the photobaric component *in vivo* of green leaves. – Photosynth. Res. **52**: 65-67, 1997. [Experimental setup.]

Franko, M., Šikovec, M., Kožar-Logar, J., Bicanic, D.: Thermal lens spectrometry in food analysis and environ-mental research. – Anal. Sci. **17**(Special Issue): s515-s518, 2001. [Novel detector.]

Freiberg, A., Ellervee, A., Tars, M., Timpmann, K., Laisaar, A.: Electron transfer and electronic energy relaxation under high hydrostatic pressure. – Biophys. Chem. **68**: 189-205, 1997. [Ps.]

Garczarek, L., van der Staay, G.W.M., Thomas, J.C., Partensky, F.: Isolation and characterization of Photosystem I from two strains of the martine oxychlorobacterium *Prochlorococcus*. – Photosynth. Res. **56**: 131-141, 1998.

Gradinaru, C.C., Özdemir, S., Gülen, D., van Stokkum, I.H.M., van Grondelle, R., van Amerongen, H.: The flow of excitation energy in LHCII monomers: Implications for the structural model of the major plant antenna. – Biophys. J. **75**: 3064-3077, 1998.

Grätzel, M.: Molecular photovoltaics that mimic photosynthesis. – Pure appl. Chem. **73**: 459-467, 2001. [Photovoltaic cell.]

Groth, G., Walker, J.E.: Model of the c-subunit oligomer in the membrane domain of F-ATPases. – FEBS Lett. **410**: 117-123, 1997.

Grove, G.N., Brudvig, G.W.: Calcium binding studies of photosystem II using a calcium-selective electrode. – Biochemistry **37**: 1532-1539, 1998.

Grzymski, J., Orrico, C., Schofield, O.M.: Monochromatic ultraviolet light induced damage to Photosystem II efficiency and carbon fixation in the marine diatom *Thalassiosira pseudonana* ($^3$H). – Photosynth. Res. **68**: 181-192, 2001. [Calculation of inhibition.]

Hallenbeck, P.C., Gennaro, G.: Stopped-flow kinetic studies of low potential electron carriers of the photosynthetic bacterium, *Rhodobacter capsulatus*: ferredoxin I and NifF. – Biochim. biophys. Acta **1365**: 435-442, 1998. [Model.]

Hammarström, L., Sun, L.C., Åkermark, B., Styring, S.: A biomimetic approach to artificial photosynthesis: Ru(II)-polypyridine photo-sensitisers linked to tyrosine and manganese electron donors. – Spectrochim. Acta **A57**: 2145-2160, 2001. [Review, 51 ref.]

Hankamer, B., Barber, J., Boekema, E.J.: Structure and membrane organization of photosystem II in green plants. – Annu. Rev. Plant Physiol. Plant mol. Biol. **48**: 641-671, 1997. [Review, 137 ref.]

Hankamer, B., Morris, E.P., Barber, J.: Revealing the structure of the oxygen-evolving core dimer of photosystem II by cryoelectron crystallography. – Natur. struct. Biol. **6**: 560-564, 1999.

Hara, M., Ajiki, S., Miyake, J.: Topological characterization and immobilization of a chromatophore membrane from *Rhodopseudomonas viridis* for application as a photoelectrical device. – Supramol. Sci. **5**: 717-721, 1998.

Hara, M., Ohkawa, H., Narato, M., Shirai, M., Asada, Y., Karube, I., Miyake, J.: Regeneration of NADPH by cactus chloroplasts: Coupling reaction with P450 monooxygenase. – J. Ferment. Bioeng. **84**: 324-329, 1997. [Model.]

Häsler, K., Engelbrecht, S., Junge, W.: Three-stepped rotation of subunits γ and ε in single molecules of F-ATPase as revealed by polarized, confocal fluorometry. – FEBS Lett. **426**: 301-304, 1998. [Model.]

Hastings, G.: Time-resolved step-scan Fourier transform infrared and visible absorption difference spectroscopy for the study of photosystem I. – Appl. Spectrosc. **55**: 894-900, 2001. [Model.]

Haumann, M., Bögershausen, O., Cherepanov, D., Ahlbrink, R., Junge, W.: Photosynthetic oxygen evolution: H/D isotope effects and the coupling between electron and proton transfer during the redox reactions at the oxidizing side of Photosystem II. – Photosynth. Res. **51**: 193-208, 1997. [Model.]

Hervás, M., Navarro, J.A., Molina-Heredia, F.P., de la Rosa, M.A.: The reaction mechanism of Photosystem I reduction by plastocyanin and cytochrome $c_6$ follows two different kinetic models in the cyanobacterium *Pseudanabaena* sp. PCC 6903. – Photosynth. Res. **57**: 93-100, 1998.

Herzfeld, J., Tounge, B.: NMR probes of vectoriality in the proton-motive photocycle of bacteriorhodopsin: evidence for an "electrostatic steering" mechanism. – Biochim. biophys. Acta **1460**: 95-105, 2000. [40 ref.]

Hu, X., Schulten, K.: Model for the light-harvesting complex I (B875) of *Rhodobacter sphaeroides*. – Biophys. J. **75**: 683-694, 1998.

Huber, M.: On the electronic structure of the primary electron donor in bacterial photosynthesis – the bchl dimer as viewed by EPR/ENDOR methods. – Photosynth. Res. **52**: 1-26, 1997. [Review, 103 ref.]

Humphrey, W., Lu, H., Logunov, I., Werner, H.-J., Schulten, K.: Three electronic state model as the primary photo-transformation of bacteriorhodopsin. – Biophys. J. **75**: 1689-1699, 1998.

Jackowski, G., Jansson, S.: Characterization of photosystem II antenna complexes separated by non-denaturing isoelectric focusing. – Z. Naturforsch. **53c**: 841-848, 1998.

Jennings, R.C., Zucchelli, G., Croce, R., Valkunas, L., Finzi. L., Garlaschi, F.M.: Model studies on the excited state equilibrium perturbation due to reaction centre trapping in Photosystem I. – Photosynth. Res. **52**: 245-253, 1997.

Kálal, T., Hideg, É., Vass, I., Hideg, K.: Double (fluorescent and spin) sensors for detection of reactive oxygen species in the thylakoid membrane. – Free Radical Biol. Med. **24**: 649-652, 1998.

Kaulen, A.D.: Electrogenic processes and protein conformational changes accompanying the bacteriorhodopsin photocycle. – Biochim. biophys. Acta **1460**: 204-219, 2000. [150 ref.]

Kieselbach, T., Hagman, Å., Andersson, B., Schröder, W.P.: The thylakoid lumen of chloroplasts. Isolation and characterization. – J. biol. Chem. **273**: 6710-6716, 1998.

Kimura, Y., Vassylyev, D.G., Miyazawa, A., Kidera, A., Matsushima, M., Mitsuoka, K., Murata, K., Hirai, T., Fujiyoshi, Y.: High resolution structure of bacteriorhodopsin determined by electron crystallography. – Photochem. Photobiol. **66**: 764-767, 1997. [Model.]

Klamt, S., Schuster, S., Gilles, E.D.: Calculability analysis in underdetermined metabolic networks illustrated by a model of the central metabolism in purple nonsulfur bacteria. – Biotechnol. Bioeng. **77**: 734-751, 2002.

Knapp, H.F., Mesquida, P., Stemmer, A.: Imaging the surface potential of active purple membrane. – Surface Interface Anal. **33**: 108-112, 2002. [Set-up for surface potential measurements.]

Koblizek, M., Masojidek, J., Komenda, J., Kucera, T., Pilloton, R., Mattoo, A.K., Giardi, M.T.: A sensitive photosystem II-based biosensor for detection of a class of herbicides. – Biotechnol. Bioeng. **60**: 664-669, 1998. [Scheme of the biosensor flow system.]

Kofer, W., Eibl, C., Steinmüller, K., Koop, H.-U.: PEG-mediated plastid transformation in higher plants. – In Vitro cell. dev. Biol. Plant **34**: 303-309, 1998.

Koyama, K.: Direct measurements for isomer ratio of retinal in bacteriorhodopsin by an electrochemical method. – Photochem. Photobiol. **66**: 784-787, 1997.

Krebs, M.P., Isenbarger, T.A.: Structural determinants of purple membrane assembly. – Biochim. biophys. Acta **1460**: 15-26, 2000. [81 ref.]

Krüger, G.H.J., Tsimilli-Michael, M., Strasser, R.J.: Light stress provokes plastic and elastic modifications in structure and function of photosystem II in camellia leaves. – Physiol. Plant. **101**: 265-277, 1997. [Model.]

Kugler, M., Jänsch, L., Kruft, V., Schmitz, U.K., Braun, H.-P.: analysis of the chloroplast protein complexes by blue-native

polyacrylamide ge electrophoresis (BN-PAGE). – Photosynth. Res. **53**: 35-44, 1997.

Kunst, L.: Preparation of physiologically active chloroplasts from *Arabidopsis*. – In: Martinez-Zapater, J., Salinas, J. (ed.): Methods in Molecular Biology. Vol. 82. Arabidopsis Protocols. Pp. 43-48. Humana Press, Totowa 1998.

Kuroiwa, S., Tonaka, M., Kawamori, A., Akabori, K.: The position of cytochrome $b_{559}$ relative to $Q_A$ in Photosystem II studied by electron-electron double resonance (ELDOR). – Biochim. biophys. Acta **1460**: 330-337, 2001.

Laisk, A., Oja, V.: Alteration of photosystem II properties with non-photochemical excitation quenching. – Phil. Trans. roy. Soc. London **B 355**: 1405-1418, 2000.

Lakshmi, K.V., Brudvig, G.W.: Pulsed electron paramagnetic resonance methods for macromolecular structure determination. – Curr. Opin. Struct. Biol. **11**: 523-531, 2001. [Photosystems; review, 56 ref.]

Lazár, D., Tomek, P., Ilík, P., Nauš, J.: Determination of the antenna heterogeneity of Photosystem II by direct simultaneous fitting of several fluorescence rice curves measured with DCMU at different light intensities. – Photosynth. Res. **68**: 247-257, 2001:

Lee, S.Y., Chang, H.N., Um, Y.S., Hong, S.H.: Bacteriorhodopsin production by cell recycle culture of *Halobacterium halobium*. – Biotechnol. Lett. **20**: 763-765, 1998.

Levanon, H., Galili, T., Regev, A., Wiederrecht, G.P., Svec, W.A., Wasielewski, M.R.: Determination of the energy levels of radical pair states in photosynthetic models oriented in liquid crystals with time-resolved electron paramagnetic resonance. – J. amer. chem. Soc. **120**: 6366-6373, 1998.

Levanon, H., Möbius, K.: Advanced EPR spectroscopy on electron transfer processes in photosynthesis and biomimetic model systems. – Annu. Rev. Biophys. biomol. Struct. **26**: 495-540, 1997. [Review, 223 ref.]

Li, A.D., Stevens, F.J., Huppe, H.C., Kersanah, R., Anderson, L.E.: *Chlamydomonas reinhardtii* NADP-linked glyceraldehyde-3-phosphate dehydrogenase contains the cysteine residues identified as potentially domain-locking in the higher plant enzyme and is light activated. – Photosynth. Res. **51**: 167-177, 1997. [Model.]

Lichtenthaler, H.K., Babani, F.: Detection of photosynthetic activity and water stress by imaging the red chlorophyll fluorescence. – Plant Physiol. Biochem. **38**: 889-895, 2000.

Luecke, H.: Atomic resolution structures of bacteriorhodopsin photocycle intermediates: the role of discrete water molecules in the function of this light-driven ion pump. – Biochim. biophys. Acta **1460**: 133-156, 2000. [96 ref.]

Malyan, A.N., Vitseva, O.I., Strotmann, H.: Identification of surface exposed amino acids of isolated and membrane-bound CF1 by protease accessibility. – Photosynth. Res. **61**: 1-9, 1999.

Mayanagi, K., Ishikawa, T., Toyoshima, C., Inoue, Y., Nakazato, K.: Three-dimensional electron microscopy of the photosystem II core complex. – J. struct. Biol. **123**: 211-224, 1998.

McCain, D.C.: Chloroplast movement can be impeded by crowding. – Planst Sci. **135**: 219-225, 1998. [NMR.]

McCain, D.C.: NMR study of chloroplast water in *Acer platanoides*: water exchange at membrane-bound sites and across the chloroplast envelope membrane. – Plant Biol. **2**: 204-207, 2000.

McKay, K.A., Harris, M.R.: An assay for the determination of a binding constant, $K_d$, for the physiological electron transfer complex between cytochrome *f* and plastocyanin. – Texas J. Sci. **49**: 243-A246, 1997.

Miyake, H., Nishimura, M., Takeoka, Y.: Immunogold labeling of Rubisco in $C_4$ plant leaves for scanning electron microscopy. – Plant Prod. Sci. **4**: 41-49, 2001.

Moraes, T.F., Plaxton, W.C.: Purification and characterization of phospho*enol*pyruvate carboxylase from *Brassica napus* (rapeseed) suspension cell cultures. Implications for phospho*enol*pyruvate carboxylase regulation during phosphate starvation, and the integration of glycolysis with nitrogen assimilation. – Eur. J. Biochem. **267**: 4465-4476, 2000.

Moreno, A., Bermejo, R., Talavera, E., Alvarez-Pez, J.M., Sanz-Aparicio, J., Romero-Garrido, A.: Purification, crystallization and preliminary X-ray diffraction studies of C-phycocyanin and allophycocyanin from *Spirulina platensis*. – Acta Crystallogr. **D 53**: 321-326, 1997.

Mould, R.M., Gray, J.C.: Import of nuclear-encoded proteins by isolated chloroplasts and thylakoids. – In: Cell Biology: A Laboratory Handbook. Vol. 2. 2nd Ed. Pp. 286-292. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1998.

Mourad, G.S.: Chloroplast DNA isolation. – In: Martinez-Zapater, J., Salinas, J. (ed.): Methods in Molecular Biology. Vol. 82. Arabidopsis Protocols. Pp. 71-77. Humana Press, Totowa 1998.

Müller, D.J., Heymann, J.B., Oesterhelt, F., Möller, C., Gaub, H., Büldt, G., Engel, A.: Atomic force microscopy of native purple membrane. – Biochim. biophys. Acta **1460**: 27-38, 2000. [74 ref.]

Müller, S.A., Engel, A.: Mass measurement in the scanning transmission electron microscope: A powerful tool for studying membrane proteins. – J. struct. Biol. **121**: 219-230, 1998. [Ps.]

Nagy, L., Kiss, V., Brumfeld, V., Malkin, S.: Thermal and structural changes of photosynthetic reaction centers characterized by photoacoustic detection with a broad frequency band hydrophone. – Photochem. Photobiol. **74**: 81-87, 2001.

Nakaema, M.K.K., Leite, V.B.P., Sanches, R.: The analysis of the electron transfer rate from steady-state fluorescence spectroscopy. – Arch. Biochem. Biophys. **344**: 61-66, 1997.

Neff, D., Tripathi, S., Middendorf, K., Stahlberg, H., Butt, H.-J., Bamberg, E., Dencher, N.A.: Chloroplast $F_0F_1$ ATP synthase imaged by atomic force microscopy. – J. struct. Biol. **119**: 139-148, 1997.

Nield, J., Orlova, E.V., Morris, E.P., Gowen, B., van Heel, M., Barber, J.: 3D map of the plant photosystem II supercomplex obtained by cryoelectron microscopy and single particle analysis. – Nature struct. Biol. **7**: 44-47, 2000.

Niyogi, K.K., Björkman, O., Grossman, A.R.: Chlamydomonas xanthophyll cycle mutants identified by video imaging of chlorophyll fluorescence quenching. – Plant Cell **9**: 1369-1380, 1997.

Oxborough, K., Baker, N.R.: An evaluation of the potential triggers of photoinactivation of photosystem II in the context of a Stern-Volmer model for downregulation and the reversible radical pair equilibrium model. – Phil. Trans. roy. Soc. London **B 355**: 1489-1498, 2000.

Parusel, A.: Artificial photosynthetic reaction centers: A semiempirical conformation analysis of various donor-

acceptor systems. – J. mol. Model. **4**: 366-378, 1998.

Pebay-Peyroula, E., Neutze, R., Landau, E.M.: Lipidic cubic phase crystallization of bacteriorhodopsin and cryotrapping of intermediates: towards resolving a revolving photocycle. – Biochim. biophys. Acta **1460**: 119-132, 2000. [71 ref.]

Ridge, J.P., Fyfe, P.K., McAuley, K.E., van Brederode, M.E., Robert, B., van Grondelle, R., Isaacs, N.W., Cogdell, R.J., Jones, M.R.: An examination of how structural changes can affect the rate of electron transfer in a mutated bacterial photoreaction centre. – Biochem. J. **351**: 567-578, 2000. [Model.]

Rijstenbil, J.W., Coelho, S.M., Eijsackers, M.: A method for the assessment of light-induced oxidative stress in embryos of fucoid algae via confocal laserscan microscopy. – Mar. Biol. **137**: 763-774, 2000.

Robblee, J.H., Cinco, R.M., Yachandra, V.K.: X-ray spectroscopy-based structure of the Mn cluster and mechanism of photosynthetic oxygen evolution. – Biochim. biophys. Acta **1503**: 7-23, 2001.

Roberts, B.J., Russ, M.E., Ostrom, N.E.: Rapid and precise determination of the $\delta^{18}O$ of disolved and gaseous dioxygen via gas chromatography-isotope ratio mass spectrometry. – Environ. Sci. Technol. **34**: 2337-2341, 2000.

Roy, S., Singh, C.P., Reddy, K.P.J.: Generalized model for all-optical light modulation in bacteriorhodopsin. – J. appl. Phys. **90**: 3679-3688, 2001.

Sacksteder, C.A., Jacoby, M.E., Kramer, D.M.: A portable, non-focusing optics spectrophotometer (NoFOSpec) for measurements of steady-state absorbance changes in intact plants. – Photosynth. Res. **70**: 231-240, 2001.

Sacksteder, C.A., Kramer, D.M.: Dark-interval relaxation kinetics (DIRK) of absorbance changes as a quantitative probe of steady-state electron transfer. – Photosynth. Res. **66**: 145-158, 2000.

Saitô, H., Tuzi, S., Yamaguchi, S., Tanio, M., Naito, A.: Conformation and backbone dynamics of bacteriorhodopsin revealed by $^{13}C$-NMR. – Biochim. biophys. Acta **1460**: 39-48, 2000. [52 ref.]

Sasaki, J., Spudich, J.L.: Proton transport by sensory rhodopsins and its modulation by transducer-binding. – Biochim. biophys. Acta **1460**: 230-239, 2000. [Bacteriorhodopsin; 60 ref.]

Sato, M.: Was the evolution of plastid genetic machinery discontinuous? – Trends Plant Sci. **6**: 151-155, 2001.

Schiller, H., Dau, H.: Preparation protocols for high-activity Photosystem II membrane particles of green algae and higher plants, pH dependence of oxygen evolution and comparison of the $S_2$-state multiline signal by X-band EPR spectroscopy. – J. Photochem. Photobiol. **B 55**: 138-144, 2000.

Schinner, K., Giannikos, I., Hansen, U.-P.: Fluorescence clamp: A direct measure of fluxes into and out of the antenna pool of Photosystem II. – Photosynth. Res. **66**: 109-123, 2000.

Schmidt, W., Schneskenburger, H.: Induction kinetics of delayed luminescence in photosynthetic organisms as measured by an LED-based phosphorimeter. – Photochem. Photobiol. **62**: 745-750, 1995.

Schole, J., Schole, C.: A new model for the molecular mechanisms of photosynthetic water oxidation and photophosphorylation. – J. theor. Biol. **192**: 247-260, 1998.

Schubert, W.-D., Klukas, O., Saenger, W., Witt, H.T., Fromme, P., Krauß, N.: A common ancestor for oxygenic and anoxygenic photosynthetic systems: A comparison based on the structural model of photosystem I. – J. mol. Biol. **280**: 297-314, 1998.

Shimaoka, T., Yokota, A., Miyake, C.: Purification and characterization of chloroplast dehydroascorbate reductase from spinach leaves. – Plant Cell Physiol. **36**: 1110-1118, 2000.

Slayton, R.M., Anfinrud, P.A.: Time-resolved mid-infrared spectroscopy: methods and biological applications. – Curr. Opin. struct. Biol. **7**: 717-721, 1997. [Ps reaction centres, bacteriorhodopsin; review, 41 ref.]

Smirnova, I.A., Blomberg, A., Andréasson, L.-E., Brzezinski, P.: Localization of light-induced structural changes in bacterial photosynthetic reaction centers. – Photosynth. Res. **56**: 45-55, 1998. [Peptide identification.]

Sugiura, M., Inoue, Y., Minagawa, J.: Rapid and discrete isolation of oxygen-evolving His-tagged photosystem II core complex from *Chlamydomonas reinhardtii* by $Ni^{2+}$ affinity column chromatography. – FEBS Lett. **426**: 140-144, 1998.

Tan, X.-X., Xu, D.-Q., Shen, Y.-K.: Both spillover and light absorption cross-section are involved in the regulation of excitation energy distribution between the two photosystems during state transitions in wheat leaf. – Photosynth. Res. **56**: 95-102, 1998. [Model.]

Teicher, H.B., Scheller, H.V.: The NAD(P)H dehydrogenase in barley thylakoids is photoactivatable and uses NADPH as well as NADH. – Plant Physiol. **117**: 525-532, 1998. [Model.]

Townsend, J.S., Kanazawa, A., Kramer, D.M.: Measurements of $S_2Q_B^-$ recombination by delayed thermoluminescence reveal heterogeneity in photosystem II energetics. - Phytochemistry **47**: 641-649, 1998. [Scheme of thermo-luminescence photometer.]

Trapmann, S., Etxebarria, N., Schnabl, H., Grobecker, K.H.: Progress in herbicide determination with the thylakoid bioassay. – Environ. Sci. Pollut. Res. **5**: 17-20, 1998.

Tsujimura, S., Nakahara, H., Ishida, N.: Estimation of soil algal biomass in salinized irrigation land: a comparison of culture dilution and chlorophyll *a* extraction methods. – J. appl. Phycol. **12**: 1-8, 2000.

Uemura, K., Shimoide, A., Yokota, A.: A non-radioassay of ribulose 1,5-bisphosphate carboxylase/oxygenase by anion-exchange chromatography. – Biosci. Biotechnol. Biochem. **62**: 567-569, 1998.

van Rotterdam, B.J., Crielaard, W., van Stokkum, I.H.M., Hellingwerf, K.J., Westerhoff, H.V.: Simplicity in complexity: the photosynthetic reaction center performs as a simple 0.2 V battery. – FEBS Lett. **510**: 105-107, 2002. [Model.]

Vavilin, D.V., Tyystjärvi, E., Aro, E.-M.: Model for the fluorescence induction curve of photoinhibited thylakoids. – Biophys. J. **75**: 503-512, 1998. [Enzyme isolation.]

Vredenberg, W.J.: A three-state model for energy trapping and chlorophyll fluorescence in photosystem II incorporating radical pair recombination. – Biophys. J. **79**: 26-38, 2000.

Vredenberg, W.J., Snell, J.F.H., Dassen, J.H.A.: A sizeable decrease in the electric conductance of the thylakoid lumen as an early event during reaction center and Q cycle turnover. – Photosynth. Res. **58**: 111-121, 1998. [Electric equivalent scheme.]

Wang, Z.-Y., Luo, S., Sato, K., Kobayashi, M., Nozawa, T.: *In situ* measurements of ribulose 1,5-bisphosphate carboxylase/oxygenase by nuclear magnetic resonance. – Anal. Biochem. **257**: 26-32, 1998.

Wang, Z.-Y., Luo, S., Sato, K., Kobayashi, M., Nozawa, T.: Measurements of the $CO_2/O_2$ specificity of ribulose 1,5-bisphosphate carboxylase/oxygenase by $^{31}P$- and $^{1}H$-NMR. – Photosynth. Res. **58**: 103-109, 1998.

Willeford, K.O., Parker, T.A.: Phosphorylation of phosphoenolpyruvate carboxylase from *Crassula argentea*. – J. agr. Food Chem. **46**: 4218-4223, 1998. [Purification.]

Yakunin, A.F., Hallenbeck, P.C.: Purification and characterization of pyruvate oxidoreductase from the photosynthetic bacterium *Rhodobacter capsulatus*. – Biochim. biophys. Acta **1409**: 39-49, 1998.

Yurkov, V., Menin, V., Schoepp, B., Verméglio, A.: Purification and characterization of reaction centers from the, *Erythromonas ursincola* and *Sandaracinobacter sibiricus*. – Photosynth. Res. **57**: 129-138, 1998.

Zhang, L.Y., Friesner, R.A.: *Ab initio* calculation of electronic coupling in the photosynthetic reaction center. – Proc. nat. Acad. Sci. USA **95**: 13603-13605, 1998.

Zigmantas, D., Polívka, T., Hiller, R.G., Yartsev, A., Sundström, V.: Spectroscopic and dynamic properties of the peridinin lowest singlet excited states. – J. phys. Chem. **105**: 10296-10306, 2001. [Model.]

## B. Analysis of chloroplast pigments and their *in vivo* complexes

Airs, R.L., Atkinson, J.E., Keely, B.J.: Development and application of a high resolution liquid chromatographic method for the analysis of complex pigment distributions. – J. Chromatogr. **A 917**: 167-177, 2001.

Airs, R.L., Keely, B.J.: Atmospheric pressure chemical ionisation liquid chromatography/mass spectrometry of bacteriochlorophylls from *Chlorobiaceae*: characteristic fragmentations. – Rapid Commun. Mass Spectrometry **16**: 453-461, 2002.

Arabas, J., Butz, P., Merkel, C., Spolnicki, Z., Szczepek, J., Tauscher, B.: Miniature optical cell for spectrophotometry under high pressure. – High Pressure Res. **19**: 379-383, 2000. [Chl.]

Aráoz, R., Lebert, M., Häder. D.-P.: Electrophoretic applications of phycobiliproteins. – Electrophoresis **19**: 215-219, 1998.

Baker, N.R., Oxborough, K., Lawson, T., Morison, J.I.L.: High resolution imaging of photosynthetic activities of tissues, cells and chloroplasts in leaves. – J. exp. Bot. **52**: 615-621, 2001.

Barlow, R.G., Cummings, D.G., Gibb, S.W.: Improved resolution of mono- and divinyl chlorophylls *a* and *b* and zeaxanthin and lutein in phytoplankton extracts using reverse phase C-8 HPLC. – Mar. Ecol. Progr. Ser. **161**: 303-307, 1997.

Barton, C.V.M.: A theoretical analysis of the influence of heterogeneity in chlorophyll distribution on leaf reflectance. – Tree Physiol. **21**: 789-795, 2001.

Barua, A.B., Olson, J.A.: Reversed-phase gradient high-performance liquid chromatographic procedure for simultaneous analysis of very polar to nonpolar retinoids, carotenoids and tocopherols in animal and plant samples. – J. Chromatogr. B **707**: 69-79, 1998.

Becker, G., Holfeld, H., Hasselrot, A.T., Fiebig, D.M., Menzler, D.A.: Use of a microscope photometer to analyze *in vitro* fluorescence intensity of epilithic microalgae grown on artificial substrata. – Appl. environ. Microbiol. **63**: 1318-1325, 1997.

Becker, M., Stubbs, M.T., Huber, R.: Crystallization of phycoerythrin 545 of *Rhodomonas lens* using detergents and unusual additives. – Protein Sci. **7**: 580-586, 1998.

Bell, C.M., Sander, L.C., Wise, S.A.: Temperature dependence of carotenoids on $C_{18}$, $C_{30}$ and $C_{34}$ bonded stationary phases. – J. Chromatogr. **A 757**: 29-39, 1997.

Bellisent-Funel, M.-C., Filabozzi, A., Chen, S.H.: Measurement of coherent Debye-Waller factor in *in vivo* deuterated C-phycocyanin by inelastic neutron scattering. – Biophys. J. **72**: 1792-1799, 1997.

Bergmann, A., Eichler, H.-J., Eckert, H.-J., Renger, G.: Picosecond laser-fluorometer with simultaneous time and wavelength resolution for monitoring decay spectra of photoinhibited Photosystem II particles at 277 K and 10 K. – Photosynth. Res. **58**: 303-310, 1998. [Scheme of double-correlation oicosecond laser-fluorometer.]

Białek-Bylka, G.E., Sofrová, D., Szurkowski, J., Skwarek, R., Sopko, B., Manikowski, H.: Linear dichroism, fluorescence polarization, and path of the thermal deactivation of excited cyanobacterial (*Synechococcus elongatus*) photosystem 1 immobilized and oriented in polymer films. – Photosynthetica **38**: 143-148, 2000. [Fluorometer for fluorescence and fluorescence polarization measurements.]

Bilger, W., Veit, M., Schreiber, L., Schreiber, U.: Measurement of leaf epidermal transmittance of UV radiation by chlorophyll fluorescence. – Physiol. Plant. **101**: 754-763, 1997.

Binder, W.D., Fielder, P., Mohammed, G.H., L'Hirondelle, S.J.: Applications of chlorophyll fluorescence for stock quality assessment with different types of fluorometers. – New Forests **13**: 63-89, 1997.

Bjerkeng, B.: Chromatographic analysis of synthesized astaxanthin – a handy fool for the ecologists and the forensic chemist? – Progr. Fish-Cult. **59**: 129-140, 1997.

Bjørnland, T.: UV-vis spectroscopy of carotenoids. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods. Pp. 578-595. UNESCO Publishing, Paris 1997.

Boon, A.R., Duineveld, G.C.A.: chlorophyll *a* as a marker for bioturbation and carbon flux in southern and central North Sea sediments. – Mar. Ecol. Progr. Ser. **162**: 33-43, 1998.

Brack, W., Frank, H.: Chlorophyll *a* fluorescence: A tool for the investigation of toxic effects in the photosynthetic apparatus. – Ecotoxicol. environ. Safety **40**: 34-41, 1998.

Breithaupt, D.E., Bamedi, A.: Carotenoid esters in vegetables and fruits: A screening with emphasis on β-cryptoxanthin esters. – J. agr. Food Chem. **49**: 2064-2070, 2001.

Buffan-Dubau, E., Carman, K.R.: Extraction of benthic microalgal pigments for HPLC analyses. – Mar. Ecol. Progr. Ser. **204**: 293-297, 2000.

Buschmann, C., Lichtenthaler, H.K.: Principles and characteristics of multicolour fluorescence imaging of plants. – J. Plant Physiol. **152**: 297-314, 1998.

Byron, O., Gilbert, R.J.C.: Neutron scattering: good news for biotechnology. – Curr. Opin. Biotechnol. **11**: 72-80, 2000. [Bacteriorhodopsin; review, 56 ref.]

Caspi, V., Malkin, S., Marder, J.B.: Oxygen uptake photosensitized by disorganized chlorophyll in model systems and thylakoids of greening barley. – Photochem. Photobiol. **71**: 441-446, 2000.

Chandra, A., Nair, M.G.: Supercritical fluid carbon dioxide extraction of α- and β-carotene from carrot (*Daucus carota* L.). – Phytochem. Anal. **8**: 244-246, 1997.

Chen, B.H., Liu, M.H.: Relationship between chlorophyll *a* and β-carotene in a lipid-containing model system during illumination. – Food Chem. **63**: 207-213, 1998.

Chernomorsky, S., Rancourt, R., Sahai, D., Poretz, R.: Evaluation of commercial chlorophyllin copper complex preparations by liquid chromatography with photodiode array detection. – J. AOAC int. **80**: 433-435, 1997.

Constante, E.G., Del Valle, M.L.J., Duran, R.M.: Bibliographical summary on high performance liquid chromatography of lipids: IV 1985-1994. – Grasas Aceites **48**: 236-247, 1997. [Chl, Car; review, 119 ref.]

Cordi, B., Depledge, M.H., Price, D.N., Salter, L.F., Donkin, M.E.: Evaluation of chlorophyll fluorescence, *in vitro* spectrophotometric pigment absortption and ion leakage as biomarkers of UV-B exposure in marine macroalgae. – Mar. Biol. **130**: 41-49, 1997.

Darko, E., Schoefs, B., Lemoine, Y.: Improved liquid chromatographic method for the analysis of photosynthetic pigments of higher plants. – J. Chromatogr. A **876**: 111-116, 2000.

Dell, J., Molnár, P., Matus, Z., Tóth, G., Steck, A., Pfander, H.: Isolation of carotenoids with 3,5,6-trihydroxy-5,6-dihydro-β-end groups from red paprika (*Capsicum annuum*). – Helv. chim. Acta **81**: 1233-1241, 1998.

Delpech, R.: Colourful cultures: classroom experiments with the unicellular alga *Haematococcus pluvialis*. – J. biol. Educ. **35**: 201-205, 2001. [Simple TLC apparatus.]

Denison, R.F., Russotti, R.: Field estimation of green leaf area index using laser-induced chlorophyll fluorescence. – Field Crops Res. **52**: 143-149, 1997.

Deol, G.S., Reese, J.C., Gill, B.S.: A rapid, nondestructive technique for assessing chlorophyll loss from greenbug (Homeoptera: Aphididae) feeding damage on sorghum leaves. – J. Kansas entomol. Soc. **70**: 305-312, 1997. [Application of a SPAD-502 chlorophyll meter.]

Downes, M.T., Hall, J.A.: A sensitive fluorometric technique for the measurement of phycobilin pigments and its application to the study of marine and freshwater picophytoplankton in oligotrophic environments. – J. appl. Phycol. **10**: 357-363, 1998.

Duke, M.V., Duke, S.O.: Analysis and manipulation of the chlorophyll pathway in higher plants. – In: Dashek, W.V. (ed.): Methods in Plant Biochemistry and Molecular Biology. Pp. 229-241. CRC Press, Boca Raton – New York 1997. [Review; 61 ref.]

Eijckelhoff, C., Dekker, J.P.: A routine method to determine the chlorophyll *a*, pheophytin *a* and β-carotene contents of isolated photosystem II reaction center complexes. – Photosynth. Res. **52**: 69-73, 1997.

Eullaffroy, P., Popovic, R., Franck, F.: Changes of chlorophyll(ide) fluorescence yield induced by a short light pulse as a probe to monitor the early steps of etioplast phototransformation in dark-grown leaves. – Photochem. Photobiol. **67**: 676-682, 1998.

Ferruzzi, M.G., Sander, L.C., Rock, C.L., Schwartz, S.J.: Carotenoid determination in biological microsamples using liquid chromatography with a coulometric electrochemical array detercor. – Anal. Biochem. **256**: 74-81, 1998.

Finnan, J.M., Burke, J.I., Jones, M.B.: A note on a non-destructive method of chlorophyll determination in wheat (*Triticum aestivum* L.). – Irish J. agr. Food Res. **36**: 85-89, 1997.

Fleming, G.R., van Grondelle, R.: Femtosecond spectroscopy of photosynthetic light-harvesting systems. – Curr. Opin. Struct. Biol. **7**: 738-748, 1997. [Review, 86 ref.]

Formaggio, E., Cinque, G., Bassi, R.: Functional architecture of the major light-harvesting complex from higher plants. – J. mol. Biol. **314**: 1157-1166, 2001.

Frąckowiak, D., Naser, N.S.: Photopotential generation in model systems and in photosynthetic organisms. – Photosynthetica **33**: 371-383, 1997. [Review; 44 ref.]

Francke, C., Amesz, J.: Isolation and pigment composition of the antenna system of four species of green sulfur bacteria. – Photosynth. Res. **52**: 137-146, 1997.

Franklin, L.A., Badger, M.R.: A comparison of photosynthetic electron transport rates in macroalgae measured by pulse amplitude modulated chlorophyll fluorometry and mass spectrometry. – J. Phycol. **37**: 756-767, 2001.

Furukawa, H., Watanabe, T., Kuroda, K.: Immobilization of chlorophyll derivatives into mesoporous silica and energy transfer between the chromophores in mesopores. – Chem. Commun. **2001**: 2002-2003, 2001. [Energy transfer system.]

Galland-Irmouli, A.V., Pons, L., Luçon, M., Villaume, C., Mrabet, N.T., Guéant, J.L., Fleurence, J.: One-step purification of R-phycoerythrin from the red macroalga *Palmaria palmata* using preparative polyacrylamide gel electrophoresis. – J. Chromatogr. **B 739**: 117-123, 2000.

García, A.L., Nicolás, N.: Establishing errors in the spectrophotometric determination of chlorophylls using different solvents. – J. Plant Physiol. **152**: 392-398, 1998.

García, A.L., Nicolás, N.: Influence of the degree of solvent impurity on the spectrophotometric determination of chlorophylls in 80 % aqueous acetone and dimethyl formamide. Application to non-abrasive extraction of leaves of *Citrus aurantium*. – Photosynthetica **35**: 545-550, 1998.

Garrido, J.L., Zapata, M.: Reversed-phase high-performance liquid chromatographic separation of mono- and divinyl chlorophyll forms using pyridine-containing mobile phases and a polymeric octadecylsilica column. – Chromatographia **44**: 43-49, 1997.

Garrido, J.L., Zapata, M.: Detection of new pigments from *Emiliania huxleyi* (Prymnesiophyceae) by high-performance liquid chromatography, liquid chromatography-mass spectrometry, visible spectroscopy, and fast atom bombardment mass spectrometry. – J. Phycol. **34**: 70-78, 1998.

Gauthier-Jaques, A., Bortlik, K., Hau, J., Fay, L.B.: Improved method to track chlorophyll degradation. – J. agr. Food Chem. **49**: 1117-1122, 2001.

Gill, E.M., Wittmershaus, B.P.: Spectral resolution of low-energy chlorophylls in Photosystem I of *Synechocystis* sp. PCC 6803 through direct excitation. – Photosynth. Res. **61**: 53-64, 1999.

Gilmore, A.M., Itoh, S., Govindjee: Global spectral-kinetic analysis of room temperature chlorophyll *a* fluorescence from light-harvesting antenna mutants of barley. – Phil. Trans. roy. Soc. London **B 355**: 1317-1384, 2000.

Gilmore, A.M., Yamasaki, H.: 9-aminoacridine and dibucain exhibit competitive interactions and complicated inhibitory effects that interfer with measurements of ΔpH and

xanthophyll cycle-dependent Photosystem II energy dissipation. – Photosynth. Res. **57**: 159-174, 1998.

Goc, J., Dudkowiak, A., Gryczyński, Z., Gryczyński, I., Zelent, B., Frąckowiak, D.: Spectral properties of bacteriochlorophyll *c* in organisms and in model systems. – J. Fluorescence **11**: 53-63, 2001.

Goc, J., Hara, M., Tateishi, T., Miyake, J.: Reconstructed light-harvesting system for photosynthetic reaction centres. – J. Photochem. Photobiol. **A 93**: 137-144, 1996. [Model.]

Goc, J., Hara, M., Tateishi, T., Miyake, J., Planner, A., Frąckowiak, D.: Spectral properties of the photosynthetic reaction units reconstituted from bacterial reaction centres and antenna pigments located in liposomes suspended in buffer or ordered in Langmuir-Blodgett films. – J. Plant Physiol. **104**: 123-131, 1997. [Liposome system composed of pigments nd reaction centres.]

Goltsev, V., Yordanov, I.: Mathematical model of prompt and delayed chlorophyll fluorescence induction kinetics. – Photosynthetica **33**: 571-586, 1997.

Goss, R., Richter, M., Wild, A.: Pigment composition of PS II pigment protein complexes purified by anion exchange chromatography. Identification of xanthophyll cycle pigment binding proteins. – J. Plant Physiol. **151**: 115-119, 1997.

Grudziński, W., Matuła, M., Sielewiesiuk, J., Kernen, P., Krupa, Z., Gruszecki, W.I.: Effect of 13-*cis* violaxanthin on organization of light harvesting complex II in monomolecular layers. – Biochim. biophys. Acta **1503**: 291-302, 2001.

Hagiwara, T., Yasuno, T., Funayama, K., Suzuki, S.: Determination of lycopene, α-carotene and β-carotene in vegetable juice by lipid chromatography/atmospheric pressure chemical ionization-mass spectrometry. – J. Food Hyg. Soc. Jap. **38**: 211-218, 1997.

Hartig, P., Wolfstein, K., Lippemeier, S., Colijn, F.: Photosynthetic activity of natural microphytobenthos populations measured by fluorescence (PAM) and $^{14}C$ tracer methods: a comparison. – Mar. Ecol. Progr. Ser. **166**: 53-62, 1998.

Hartwich, G., Fiedor, L., Simonin, L., Cmiel, E., Schäfer, W., Noy, D., Scherz, A., Scheer, H.: Metal-substituted bacteriochlorophylls. 1. Preparation and influence of metal and coordination on spectra. –J. amer. chem. Soc. **120**: 3675-3683, 1998.

Hegazi, M.M., Pérez-Ruzafa, A., Almela, L., Candela, L., Candela, M.-E.: Separation and identification of chlorophylls and carotenoids from *Caulerpa prolifera, Jania rubens* and *Padina pavonia* by reversed-phase high-performance liquid chromatography. – J. Chromatogr. A **829**: 153-159, 1998.

Ibañez, E., Lopez-Sebastian, S., Tabera, J., Reglero, G.: Separation of carotenoids by subcritical fluid chromatography with coated, packed capilary columns and neat carbon dioxide. – J. Chromatogr. A **823**: 313-319, 1998.

Kim, S., Barry, B.A.: Identification of carbonyl modes of $P_{700}$ and $P_{700}^+$ by *in situ* chlorophyll labeling in photosystem I. – J. amer. chem. Soc. **122**: 4980-4981, 2000.

Kolber, Z.S., Prášil, O., Falkowski, P.G.: Measurements of variable chlorophyll fluorescence using fast repetition rate techniques: defining methodology and experimental protocols. – Biochim. biophys. Acta **1367**: 88-106, 1998.

Kozokue, N., Tsuchida, H., Friedman, M.: Tracer studies on the incorporation of [2-$^{14}C$]-DL-mevalonate into chlorophylls *a* and *b*, α-chaconine, and α-solanine of potato sprouts. – J. agr. Food Chem. **49**: 92-97, 2001. [Vessel for tracer studies, scheme of extraction and fractionation.]

Kramer, D.M., Sacksteder, C.A.: A diffused-optics flash kinetic spectrophotometer (DOFS) for measurements of absorbance changes in intact plants in the steady-state. – Photosynth. Res. **56**: 103-112, 1998.

Kromkamp, J., Barranguet, C., Peene, J.: Determination of microphytobenthos PSII quantum efficiency and photosynthetic activity by mens of variable chlorophyll fluorescence. – Mar. Ecol. Progr. Ser. **162**: 45-55, 1998.

Kruk, J., Strzalka, H.: Identification of plastoquinone-C in spinach and maple leaves by reverse-phase high-performance liquid chromatography. – Phytochemistry **49**: 2267-2271, 1998.

Kruse, O., Nixon, P.J., Schmid, G.H., Mullineaux, C.W.: Isolation of state transition mutants of *Chlamydomonas reinhardtii* by fluorescence video imaging. – Photosynth. Res. **61**: 43-51, 1999.

Kühn, O., Sundström, V., Pullerits, T.: Fluorescence depolarization dynamics in the B850 complex of purple bacteria. – Chem. Phys. **275**: 15-30, 2002. [Model.]

Kunji, E.R.S., Gronau, S. von, Oesterhelt, D., Henderson, R.: The three-dimensional structure of halorhodopsin to 5 Å by electron crystallography: A new unbending procedure for two-dimensional crystals by using a global reference structure. – Proc. nat. Acad. Sci. USA **97**: 4637-4642, 2000.

Küpper, H., Küpper, F., Spiller, M.: *In situ* detection of heavy metal substituted chlorophylls in water plants. – Photosynth. Res. **58**: 123-133, 1998.

Lazár, D., Pospíšil, P.: Mathematical simulation of chlorophyll *a* fluorescence rise measured with 3-(3',4'-dichlorophenyl)-1,1-dimethylurea-treated barley leaves at room and high temperatures. – Eur. Biophys. J. **28**: 468-477, 1999. [Model.]

Le Bris, S., Plante-Cuny, M.-R., Vacelet, E.: Characterisation of bacterial and algal pigments and breakdown products by HPLC in mixed freshwater planktonic populations. – Arch. Hydrobiol. **143**: 409-434, 1998.

Liang, Y., White, W.S., Yao, L., Serfass, R.E.: Use of high-precision gas isotope ratio mass spectrometry to determine natural abundance $^{13}C$ in lutein isolated from $C_3$ and $C_4$ plant sources. – J. Chromatogr. A **800**: 51-58, 1998.

Lichtenthaler, H.K., Miehé, J.A.: Fluorescence imaging as a diagnostic tool for plant stress. – Trends Plant Sci. **2**: 316-320, 1997. [Review, 38 ref.]

Lietz, G., Henry, C.J.K.: A modified method to minimise losses of carotenoids and tocopherols during HPLC analysis of red palm oil. – Food Chem. **60**: 109-117, 1997.

Lohr, M., Wilhelm, C.: Xanthophyll synthesis in diatoms: quantification of putative intermediates and comparison of pigment conversion kinetics with rate constants derived from a model. – Planta **212**: 382-391, 2001.

Lootens, P., Vandecasteele, P.: A cheap chlorophyll *a* fluorescence imaging system. – Photosynthetica **38**: 53-56, 2000.

Madeira, A.C., Mendonça, A., Ferreira, M.E., Taborda, M. de L.: Relationship between spectroradiometric and chlorophyll measurements in green beans. – Commun. Soil Sci. Plant Anal. **31**: 631-643, 2000.

Malkin, S.: The photoacoustic effect in leaves and its applications. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 484-524. Taylor & Francis, London – New York 2000. [Review, 57 ref.]

Mangos, TJ., Berger, R.G.: Determination of major chlorophyll degradation products. – Z. Lebensm. Unters. Forsch. **A 204**: 345-350, 1997.

Mantoura, R.F.C., Barlow, R.G., Hed, E.J.H.: Simple isocratic HPLC methods for chlorophylls and their degradation products. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods. Pp. 307-326. UNESCO Publishing, Paris 1997. [Review, 33 ref.]

Markwell, J., Blevins, D.: The Minolta SPAD-502 leaf chlorophyll meter: An exciting new tool for eduacation in the plant sciences. – Amer. Biol. Teach. **61**: 672-676, 1999.

Merzlyak, M.N., Gitelson, A.A., Chivkunova, O.B., Rakitin, V.Y.: Non-destructive optical detection of pigment changes during leaf senescence and fruit ripening. – Physiol. Plant. **106**: 135-141, 1999.

Meyer, S., Genty, B.: Mapping intercellular $CO_2$ mole fraction (Ci) in *Rosa rubiginosa* leaves fed with abscisic acid by using chlorophyll fluorescence imaging. Significance of Ci estimated from leaf gas exchange. – Plant Physiol. **116**: 947-957, 1998.

Morales, F., Cerovic, Z.G., Moya, I.: Time-resolved blue-green fluorescence of sugar beet leaves. Temperature-induced changes and consequences for the potential use of blue-green fluorescence as a signature for remote sensing of plants. – Aust. J. Plant Physiol. **25**: 325-334, 1998.

Moreau, R.A., Powell, M.J., Agnew, J., Young, D.H.: Chlorophyll-derived porphyrins co-chromatographs with phospholipids in high performance liquid chromatographic separations of plant lipid classes. – Photochem. Analysis **9**: 1-4, 1998.

Nakamura, A., Watanabe, T.: HPLC determination of photosynthetic pigments during greening of etiolated barley leaves. Evidence for the biosynthesis of chlorophyll *a'*. – FEBS Lett. **426**: 201-204, 1998.

Naser, N.S., Planner, A., Frąckowiak, D.: Action pectra of the photopotential generation for pigment and dye solutions in nemanic liquid crystals located in the electrochemical cell. – Photochem. Photobiol. A **113**: 279-282, 1998. [Apparatus scheme.]

Osborne, S.L., Schepers, J.S., Francis, D.D., Schlemmer, M.R.: Use of spectral radiance to estimate in-season biomass and grain yield in nitrogen- and water-stressed corn. – Crop Sci. **42**: 165-171, 2002. [SPAD.]

Osuka, A., Kume, T.: Fucoxanthin- and peridinin-pheophorbide-*a* molecules as a new light-harvesting model. – Tetrahedron Lett. **39**: 655-658, 1998.

Ptak, A., Chrzumnicka, E., Planner, A., Frąckowiak, D.: Photoelectric properties of chlorophyll and carotene solutions in nematic liquid crystal located between semiconducting electrodes. – Biophys. Chem. **65**: 165-170, 1997. [Apparatus and cell for photoelectrical measurements.]

Ptak, A., Der, A., Toth-Boconadi, R., Naser, N.S., Frąckowiak, D.: Photocurrent kinetics (in the microsecond time range) of chlorophyll *a*, chlorophyll *b* and stilbazolium merocyanine solutions in a nematic liquid crystal located in an electrochemical cell. – J. Photochem. Photobiol. A **104**: 133-139, 1997. [Arrangement for photocurrent measurement.]

Qian, P., Yagura, T., Koyama, Y., Cogdell, R.J.: Isolation and purification of the reaction center (RC) and the core (RC-LH1) complex from *Rhodobium marinum*: the LH1 ring of the detergent-solubilized core complex contains 32 bacterio-chlorophylls. – Plant Cell Physiol. **41**: 1347-1353, 2000.

Reek, J.N.H., Rowan, A.E., de Gelder, R., Beurskens, P.T., Crossley, M.J., de Feyter, S., de Schryver, F., Nolte, R.J.M.: Novel cleft-containing porphyrins as models for studying electron transfer processes. – Angew. Chem. int. Ed. **36**: 361-363, 1997.

Reese, R.N.: Separation of chloroplast pigments using reverse phase chromatography. – Amer. Biol. Teach. **59**: 114-117, 1997.

Reis, A., Mendes, A., Lobo-Fernandes, H., Empis, J.A., Novais, J.M.: Production, extraction and purification of phycobiliproteins from *Nostoc* sp. – Bioresour. Technol. **66**: 181-187, 1998.

Repeta, D.J., Bjørnland, T.: Preparation of carotenoid standards. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography. Guidelines to Modern Methods. Pp. 239-260. UNESCO Publishing, Paris 1997. [58 ref.]

Richardson, A.D., Duigan, S.P., Berlyn, G.P.: An evaluation of noninvasive methods to estimate foliar chlorophyll content. – New Phytol. **153**: 185-194, 2002. [Comparison of methods.]

Riso, P., Porrini, M.: Determination of carotenoids in vegetable foods and plasma. – Int. J. Vitam. Nutr. Res, **67**: 47-54, 1997.

Rojdestvenski, I., Ivanov, A.G., Cottam, M.G., Oquist, G.: A two-dimensional many-body system with competing interactions as a model for segregation of photosystems in thylakoids of green plants. – Eur. Biophys. J. **29**: 214-220, 2000.

Rüdiger, W.: Chlorophyll metabolism: From outer space down to the molecular level. – Phytochemistry **46**: 1151-1167, 1997.

Schepers, J.S., Blackmer, T.M., Francis, D.D.: Chlorophyll meter method for estimating nitrogen content in plant tissue. – In: Kalra, Y.P. (ed.): Handbook of Reference Methods for Plasnt Analysis. Pp. 129-135. CRC Press, Boca Raton 1998.

Schmid, H., Bauer, F., Stich, H.B.: Determination of algal biomass with HPLC pigment analysis from lakes of different trophic state in comparison to microscopically measured biomass. – J. Plankton Res. **20**: 1651-1661, 1998.

Schmidt, K.A., Trissl, H.-W.: Combined fluorescence and photovoltage studies on chlorosome containing bacteria. I. Whole cells of *Chloroflexus aurantiacus*. – Photosynth. Res. **58**: 43-55, 1998. [Model.]

Stadnichuk, I.N., Karapetyan, N.V., Kislov, L.D., Semenenko, V.E., Veryasov, M.B.: Two γ-polypeptides of B-phycoerythrin from *Porphyridium cruentum*. – J. Photochem. Photobiol. **B 39**: 19-23, 1997. [Chromatographic separation.]

Stirber, A., Govindjee, Strasser, B.J., Strasser, R.J.: Chlorophyll *a* fluorescence induction in higher plants: Modelling and numerical simulation. – J. theor. Biol. **193**: 131-151, 1999.

Strasser, R.J., Srivastava, A., Tsimilli-Michael, M.: The fluorescence transient as a tool to characterize and screen photosynthetic samples. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 445-483. Taylor & Francis, London – New York 2000. [Review, 55 ref.]

Strutton, P.G., Mitchell, J.G., Parslow, J.S.: Using non-linear analysis to compare the spatial structure of chlorophyll with passive tracers. – J. Plankton Res. **19**: 1553-1564, 1997.

Talbot, M.F.J., Sauer, K.: Spectrofluorimetric method for the determination of large chlorophyll *a/b* ratios. – Photosynth. Res. **53**: 73-79, 1997.

Tamiaki, H., Kouraba, M.: Synthesis of chlorophyll-*a* homologs by Wittig and Knoevenagel reactions with methylpyro-pheophorbide-*d*. – Tetrahedron **53**: 10677-10688, 1997.

Taungbodhitham, A.K., Jones, G.P., Warlqvist, M.L., Briggs, D.R.: Evaluation of extraction method for the analysis of carotenoids in fruits and vegetables. – Food Chem. **63**: 577-584, 1998.

Tewari, A.K., Tripathy, B.C.: Quantitative estimation of coproporphyrin III and protoporphyrin IX from their mixture by spectrofluorometry. – J. Plant Biochem. Biotechnol. **7**: 43-46, 1998.

Thompson, J.A.: Cellular fluorescence capacity as an endpoint in algal toxicity testing. – Chemosphere **35**: 2027-2037, 1997.

Tsuchiya, T., Ohta, H., Masuda, T., Mikami, B., Kita, N., Shioi, Y., Takamiya, K.: Purification and characterization of two isozymes of chlorophyllase from mature leaves of *Chenopodium album*. – Plant Cell Physiol. **38**: 1026-1031, 1997.

Weissenberg, M., Levy, A., Schaeffler, I., Menagem, E., Barzilai, M.: Rapid isocratic HPLC analysis of beta-carotene in red peppers (*Capsicum annuum* L.) and food preparations. – Chromatographia **46**: 399-403, 1997.

Weissenberg, M., Schaeffler, I., Menagem, E., Barzilai, M., Levy, A.: Isocratic non-aqueous reversed-phase high-performance liquid chromatographic separation of capsanthin and capsorubin in red peppers (*Capsicum annuum* L.) paprika and oleoresin. – J. Chromatogr. **A 757**: 89-95, 1997.

Wildshire, K.H., Harsdorf, S., Smidt, B., Blöcker, G., Reuter, R., Schroeder, F.: The determination of algal biomass (as chlorophyll) in suspended matter from the Elbe estuary and the German Bight: A comparison of high-performance liquid chromatography, delayed fluorescence and prompt fluorescence methods. – J. exp. mar. Biol. Ecol. **222**: 113-131, 1998.

Wright, S.W.: Summary of terms and equations used to evaluate HPLC chromatograms. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography. Guidelines to Modern Methods. Pp. 622-630. UNESCO Publishing, Paris 1997.

Wright, S.W., Jeffrey, S.W., Mantoura, R.F.C.: Evaluation of methods and solvents for pigment extraction. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography. Guidelines to Modern Methods. Pp. 261-282. UNESCO Publishing, Paris 1997. [Review, 58 ref.]

Wright, S.W., Mantoura, R.F.C.: Guidelines for collection and pigment analysis of field samples. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography. Guidelines to Modern Methods. Pp. 429-445. UNESCO Publishing, Paris 1997.

Wright, S.W., Mantoura, R.F.C.: Guidelines for selecting and setting up an HPLC system and laboratory. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography. Guidelines to Modern Methods. Pp. 383-406. UNESCO Publishing, Paris 1997.

Yang, C.M., Yang, J.S., Yang, C.K., Chou, C.H.: Long-term ecological research on chlorophyll cycling in the Yuanyang Lake Natural Preserve I. The grey prediction models on chlorophyll degradation of *Chamaecyparis* var. *formosana* leaf. – Photosynthetica **37**: 499-508, 2000.

Yuan, J.-P., Chen, F.: Identification of astaxanthin isomers in *Haematococcus lacustris* by HPLC-photodiode array detection. – Biotechnol. Techniques **11**: 455-459, 1997.

Yuan, J.-P., Chen, F.: Chromatographic separation and purification of *trans*-astaxanthin from the extracts of *Haematococcus pluvialis*. – J. agr. Food Chem. **46**: 3371-3375, 1998.

Zapata, M., Rodríguez, F., Garrido, J.L.: Separation of chlorophylls and carotenoids from marine phytoplankton: a new HPLC method using a reversed phase $C_8$ column and pyridine-containing mobile phases. – Mar. Ecol. Progr. Ser. **195**: 29-45, 2000.

Zhang, X.-W., Gong, X.D., Chen, F.: Dynamics and stability analysis of the growth and astaxanthin production system of *Heamatococcus pluvialis*. – J. ind. Microbiol. Biotechnol. **23**: 133-137, 1999.

Zhang, X.W., Zhang, Y.M., Chen, F.: Kinetic models for phycocyanin production by high cell density mixotrophic culture of the microalga *Spirulina platensis*. – J. ind. Microbiol. Biotechnol. **21**: 283-288, 1998.

Zolla, L., Bianchetti, M., Timperio, A.M., Corradini, D.: Rapid resolution by reversed-phase light-performance liquid chromatography of the thylakoid membrane proteins of the photosystem II light-harvesting complex. – J. Chromatogr. A **779**: 131-138, 1997.

## C. Analysis of gas exchange and accumulation of dry matter and energy

Acock, M.C.: Refoliation of *Erythroxylum coca* var. *coca*. I. Measurement techniques. – Biotronics **28**: 87-95, 1999.

Araki, T., Kitano, M., Hamakoga, M., Eguchi, H.: Analysis of growth, water balance and respiration of tomato fruits under water deficit by using a multiple chamber system. – Biotronics **27**: 61-68, 1998. [Multiple chamber system for on-line measurements of $CO_2$ and $H_2O$ gas fluxes in fruits and leaves.]

Assmann, S.M., Shimazaki, K.-I.: The multisensory guard cell. Stomatal responses to blue light and abscisic acid. – Plant Physiol. **119**: 809-815, 1999.

Bunce, J.A.: The temperature dependence of the stimulation of photosynthesis by elevated carbon dioxide in wheat and barley. – J. exp. Bot. **49**: 1555-1561, 1998.

Cen, Y.-P., Turpin, D.H., Layzell, D.B.: Whole-plant gas exchange and reductive biosynthesis in white lupin. – Plant Physiol. **126**: 1555-1565, 2001. [Scheme of system for simultaneous measurement of $CO_2$ and $O_2$ exchange.]

Cook, A.C., Oechel, W.C., Sveinbjornsson, B.: Using Icelandic $CO_2$ springs to understand the long-term effects of elevated atmospheric $CO_2$. – In: Raschi, A., Miglietta, F., Tognetti, R., van Garningen, P.R. (ed.): Plant Responses to Elevated $CO_2$. Evidence from Natural Springs. Pp. 87-102. Cambridge University Press, Cambridge – New York – Melbourne 1997.

Dang, Q.-L., Margolis, H.A., Collatz, G.J.: Parametrization and testing of a coupled photosynthesis-stomatal conductance model for boreal trees. – Tree Physiol. **18**: 141-153, 1998.

Daudet, F.A., Silvestre, J., Ferreira, M.I., Valancogne, C., Pradelle, F.: Leaf boundary layer conductance in a vineyard in Portugal. – Agr. Forest Meteorol. **89**: 255-267, 1998. [Model.]

Dubay, D.M., Madore, M.A.: Computer simulation of plant and crop allocation processes. – In: Pessarakli, M. (ed.):

Handbook of Plant and Crop Physiology. 2nd Edition. Pp. 909-913. Marcel Dekker, New York – Basel 2002. [Review, 38 ref.]

Fishman, S., Génard, M.: A biophysical model of fruit growth: simulation of seasonal and diurnal dynamics of mass. – Plant Cell Environ. **21**: 739-752, 1998.

Fredeen, A.L., Sage, R.F.: Temperature and humidity effects on branchlet gas-exchange in white spruce: an explanation for the increase in transpiration with branchlet temperature. – Trees **14**: 161-168, 1999.

Hari, P., Keronen, P., Bäck, J., Altimir, N., Linkosalo, T., Pohja, T., Kulmala, M., Vesala, T.: An improvement of the method for calibrating measurements of photosynthetic $CO_2$ flux. – Plant Cell Environ. **22**: 1297-1301, 1999.

Haupt-Herting, S., Klug, K., Fock, H.P.: A new approach to measure gross $CO_2$ fluxes in leaves. Gross $CO_2$ assimilation, photorespiration, and mitochondrial respiration in the light in tomato under drought stress. – Plant Physiol. 126: 388-396, 2001. [Open gas exchange system, $^{12}CO_2/^{13}CO_2$.]

Herzog, H., Olszewski, A.: A rapid method for measuring freezing resistance in crop plants. – J. Agron. Crop Sci. **181**: 71-79, 1998.

Jones, H.G.: Use of thermography for quantitative studies of spatial and temporal variation of stomatal conductance over leaf surface. – Plant Cell Environ. **22**: 1043-1055, 1999.

Kellomäki, S., Wang, K.-Y.: Daily and seasonal $CO_2$ exchange in Scots pine grown under elevated $O_3$ and $CO_2$: experiment and simulation. – Plant Ecol. **136**: 229-248, 1998.

King, D.A., Ball, M.C.: A model of frost impacts on seasonal photosynthesis of *Eucalyptus pauciflora*. – Aust. J. Plant Physiol. **25**: 27-37, 1998.

Kiniry, J.R., Landivar, J.A., Witt, M., Gerik, TJ., Cavero, J., Wade, L.J.: Radiation-use efficiency response to water pressure deficit for maize and sorghum. – Field Crops Res. **56**: 265-270, 1998. [Model.]

Lawson, T., James, W., Weyers, J.: A surrotage measure of stomatal aperture. – J. exp. Bot. **49**: 1397-1403, 1998.

Lazár, D., Brokeš, M., Nauš, J., Dvořák, L.: Mathematical modelling of 3-(3',4'-dichlorophenyl)-1,1-dimethylurea action in plant leaves. – J. theor. Biol. **191**: 79-86, 1998.

Leonardos, E.D., Grodzinski, B.: Quantifying immediate carbon export from source leaves. – In: Pessarakli, M. (ed.): Handbook of Plant and Crop Physiology. 2nd Edition. Pp. 407-420. Marcel Dekker, New York – Basel 2002. [Gas exchange systems, $^{14}C$; review, 104 ref.]

Lhomme, J.-P., Elguero, E., Chehbouni, A., Boulet, G.: Stomatal control of transpiration: Examination of Monteith's formulation of canopy resistance. – Water Resour. Res. **34**: 2301-2308, 1998.

Lüttge, U.: The tonoplast functioning as the master switch for circadian regulation of crassulacean acid metabolism. – Planta **211**: 761-769, 2000. [Review, 63 ref.]

Maier-Maercker, U.: Image analysis of the stomatal cell walls of *Picea abies* (L.) Karst. in pure and ozone-enriched air. – Trees **12**: 181-185, 1998.

McDermitt, D.K., Garcia, R.L., Welles, J.M., Demetriades-Shah, T.H.: Common errors in gas exchange measurements. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): Probing Photosynthesis. Mechanisms, Regulation and Adaptation. Pp. 525-538. Taylor & Francis, London – New York 2000.

Mitchell, R.A.C., Mitchell, V.J., Lawlor, D.W.: Response of wheat canopy $CO_2$ and water gas-exchange to soil water content under ambient and elevated $CO_2$. – Global Change Biol. **7**: 599-611, 2001.

Niu, G., Kozai, T., Hayashi, M., Tateno, M.: Time course simulations of $CO_2$ concentration and net photosynthetic rates of potato plantlets cultured under different lighting cycles. – Trans. ASAE **40**: 1711-1718, 1998.

Oren, R., Ewers, B.E., Tood, P., Phillips, N., Katul, G.: Water balance delineates the soil layer in which moisture affects canopy conductance. – Ecol. Appl. **8**: 990-1002, 1998. [Model.]

Oren, R., Sperry, J.S., Katul, G.G., Pataki, D.E., Ewers, B.E., Phillips, N., Schäfer, K.V.R.: Survey and synthesis of intra- and interspecific variation in stomatal sensitivity to vapour pressure deficit. – Plant Cell Environ. **22**: 1515-1526, 1999.

Pachepsky, L.B., Acock, B., Hoffman-Benning, S., Willmitzer, L., Fisahn, J.: Estimation of the anatomical, stomatal, and biochemical components of differences in photosynthesis and transpiration of wild-type and transgenic (expressing yeast-derived invertase targeted to the vacuole) tobacco leaves. – Plant Cell Physiol. **20**: 1070-1078, 1997. [Model.]

Pachepsky, L.B., Muschak, M., Acock, B., Kossmann, J., Blechschmidt-Schneider, S., Willmitzer, L., Fisahn, J.: Calculating leaf boundary layer parameters with the two-dimensional model 2DLEAF comparing transpiration rates of normal (cv. Désirée) and transgenic (sucrose transport antisense) potato plants. – Biotronics **27**: 41-52, 1998.

Pate, J., Arthur, D.: $\delta^{13}C$ analysis of phloem sap carbon: novel means of evaluating seasonal water stress and interpreting carbon isotope signature of foliage and trunk wood of *Eucalyptus globulus*. – Oecologia **117**: 301-311, 1998.

Peet, M.M., Krizek, D.T.: Carbon dioxide. – In: Langhans, R.W., Tibbitts, T.W. (ed.): Plant Growth Chamber Handbook. (North Central Regional Research Publication No. 340; Iowa Agriculture and Home Economics Experiment Station Special Report No. 99.) Pp. 65-80. Iowa State University, Ames 1997. [Review, 56 ref.]

Peisker, M., Heinemann, I., Pfeffer, M.: A study on the relationships between leaf conductance, $CO_2$ concentration and carboxylation rate in various species. – Photosynth. Res. **56**: 35-43, 1998. [Models.]

Pepin, S., Livingston, N.J.: Rates of stomatal opening in conifer seedlings in relation to air temperature and daily carbon gain. – Plant Cell Physiol. **20**: 1462-1472, 1997. [Ps, models.]

Pfeffer, M., Peisker, M.: $CO_2$ gas exchange and phosphoenolpyruvate carboxylase activity in leaves of *Zea mays* L. – Photosynth. Res. **58**: 281-291, 1998. [Model of $C_4$ photosynthesis at low PPFD.]

Rink, S., Kühl, M., Bijma, J., Spero, H.J.: Microsensor studies of photosynthesis and respiration in the symbiotic foraminifer *Orbulina universal*. – Mar. Biol. **131**: 583-595, 1998. [Measuring chamber.]

Schultz, H.R., Lebon, E., Rousseau, C.: Suitability of the 'Ball, Woodrow, Berry'-model for the description of stomatal coupling to photosynthesis of different *Vitis* species and *Vitis vinifera* cultivars in different climatic regions at various levels of water deficit. – Acta Hort. **493** [Rühl, E.H., Schmid, J. (ed.): Proceedings First ISHS Workshop on Water Relations of Grapevines]: 17-30, 1999. [Models.]

Shibuya, T., Kitaya, Y., Kozai, T.: Dynamic measurements of net photosynthetic and evapotranspiration rate and sensible and latent heat transfers rates of plug sheets based on micro-meteorological and weighing methods. – Environ.

Control Biol. **35**: 71-76, 1997. [Ps.]
Sims, D.A., Luo, Y., Seemann, J.R.: Importance of leaf versus whole plant $CO_2$ environment for photosynthetic acclimation. – Plant Cell Environ. **21**: 1189-1196, 1998.
Sundberg, B., Campbell, D., Palmqvist, K.: Predicting $CO_2$ gain and photosynthetic light acclimation from fluorescence yield and quenching in cyano-lichens. – Planta **201**: 138-145, 1997. [Model.]
Sundberg, B., Palmqvist, K., Esseen, P.-A., Renhorn, K.-E.: Growth and vitality of epiphytic lichens. II. Modelling of carbon gain using field and laboratory data. – Oecologia **109**: 10-18, 1997.
Tabrizi, H., Schinner, K., Spors, J., Hansen, U.-P.: Deconvolution of the three components of the photoacoustic signal by curve fitting and the ralationship of $CO_2$ uptake to proton fluxes. – Photosynth. Res. **57**: 101-115, 1998. [Photoacoustic chamber.]
Tyystjärvi, E., Karunen, J., Lemmetyinen, H.: Measurement of photosynthetic oxygen evolution with a new type of oxygen sensor. – Photosynth. Res. **56**: 223-227, 1998.
van Gardingen, P.R., Grace, J., Jeffree, C.E., Byari, S.H., Miglietta, F., Raschi, A., Bettarini, I.: Long-term effects of enhanced $CO_2$ concentrations on leaf gas exchange: research opportunities using $CO_2$ springs. – In: Raschi, A., Miglietta, F., Tognetti, R., van Garningen, P.R. (ed.): Plant Responses to Elevated $CO_2$. Evidence from Natural Springs. Pp. 69-86. Cambridge University Press, Cambridge – New York – Melbourne 1997.
van Oijen, M., Schapendonk, A.H.C.M., Jansen, M.J.H., Pot, C.S., van Kleef, J., Goudriaan, J.: Effects of elevated $CO_2$ on development and morphology of spring wheat grown in cooled and non-cooled open-top chambers. – Aust. J. Plant Physiol. **25**: 617-626, 1998.
Wei, C., Tyree, M.T., Bernink, J.P.: The transmission of gas pressure to xylem fluid pressure when plants are inside a pressure bomb. – J. exp. Bot. **51**: 309-316, 2000.
Williams, T.G., Flanagan, L.B.: Measuring and modelling environmental influences on photosynthetic leaf gas exchange in *Sphagnum* and *Pleurozium*. – Plant Cell Environ. **21**: 555-564, 1998.
Williams, W.E., Gorton, H.L.: Circadian rhythms have insignificant effects on plant leaf gas exchange under field conditions. – Physiol. Plant **103**: 247-256, 1998. [Open gas exchange system with IRGA.]
Woodward, F.I., Beerling, D.J.: Plant $CO_2$ responses in the long term: plants from $CO_2$ springs in Florida and tombs in Egypt. – In: Raschi, A., Miglietta, F., Tognetti, R., van Garningen, P.R. (ed.): Plant Responses to Elevated $CO_2$. Evidence from Natural Springs. Pp. 103-113. Cambridge University Press, Cambridge – New York – Melbourne 1997.
Yu, G.-R., Nakayama, K., Matsuoka, N., Kon, H.: A combination model for estimating stomatal conductance of maize (*Zea mays* L.) leaves over a long term. – Agr. Forest Meteorol. **92**: 9-28, 1998.
Zhang, H., Simmonds, L.P., Morison, J.I.L., Payne, D.: Estimation of transpiration by single trees: comparison of sap flow measurements with a combination equation. – Agr. Forest Meteorol. **87**: 155-169, 1997. [Stomatal conductance; model.]
Zonneveld, C.: Modeling effects of photoadaptation on the photosynthesis-irradiance curve. – J. theor. Biol. **186**: 381-388, 1997.

## D. Canopies and aquatic communities: analysis of structure, production, and mass and energy exchange

Amthor, J.S., Loomis, R.S.: Integrating knowledge of crop responses to elevated $CO_2$ and temperature with mechanistic simulation models: model components and reseach needs. – In: Koch, G.W., Mooney, H.A. (ed.): Carbon Dioxide and Terrestrial Ecosystems. Pp. 317-345. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Ps; review, 113 ref.]
Anderson, L.J., Maherali, H., Johnson, H.B., Polley, H.W., Jackson, R.B.: Gas exchange and photosynthetic acclimation over subambient to elevated $CO_2$ in a $C_3$-$C_4$ grassland. – Global Change Biol. **7**: 693-707, 2001. [Model, procedures.]
Aparicio, N., Villegas, D., Casadesus, J., Araus, J.L., Royo, C.: Spectral vegetation indices as nondestructive tools for determining durum wheat yield. – Agron. J. **92**: 83-91, 2000.
Arbones, B., Figueiras, F.G., Varela, R.: Action spectrum and maximum quantum yield of carbon fixation in natural phytoplankton population: implications for primary production estimates in the ocean. – J. mar. Syst. **26**: 97-114, 2000.
Asaeda, T., Trung, V.K., Manatunge, J.: Modeling the effects of macrophyte growth and decomposition on the nutrient budget in Shallow Lakes. – Aquat. Bot. **68**: 217-237, 2000.
Asaeda, T., van Bon, T.: Modelling the effects of macrophytes on algal blooming in eutrophic shallow lakes. – Ecol. Model. **104**: 261-287, 1997.
Avard, M.M., Schiebe, F.R., Everitt, J.H.: A potential tool for estimating chlorophyll concentration in lakes and reservoirs. – J. Freshwater Ecol. **15**: 125-133, 2000. [Airborne video cameras with narrow band filters.]
Baldocchi, D.: Measuring and modelling carbon dioxide and water vapour exchange over a temperate broad-leaves forest during the 1995 summer drought. – Plant Cell Environ. **20**: 1108-1122, 1997.
Barranguet, C., Kromkamp, J.: Estimating primary production rates from photosynthetic electron transport in estuarine microphytobenthos. – Mar. Ecol. Progr. Ser. **204**: 39-52, 2000.
Bartelink, H.H.: Effects of stand composition and thinning in mixed-species forests: a modeling approach applied to Douglas-fir and beech. – Tree Physiol. **20**: 399-406, 2000.
Baumert, H.: On the theory of photosynthesis and growth in phytoplankton. Part I: Light limitation and constant temperature. – Int. Rev. ges. Hydrobiol. **81**: 109-139, 1996. [Review; 118 ref.]
Behrenfeld, M.J., Falkowski, P.G.: A consumer's guide to phytoplankton primary productivity models. – Limnol. Oceanogr. **42**: 1479-1491, 1997.
Benjamin, L.R., Aikman, D.P.: Predicting growth in stands of mixed species from that in individual species. – Ann. Bot. **76**: 31-42, 1995.
Bernier, P.Y., Raulier, F., Stenberg, P., Ung, C.-H.: Importance of needle age and shoot structure on canopy net photosynthesis of balsam fir (*Abies balsamea*): a spacially inexplicit modeling analysis. – Tree Physiol. **21**: 815-830, 2001.
Blanchard, G.F., Guarini, J.-M., Richard, P., Gross, P., Mornet, F.: Quantifying the short-term temperature effect on light-saturated photosynthesis of intertidal microphytobenthos. – Mar. Ecol. Progr. Ser. **134**: 309-313, 1996. [Model.]

Bobbin, J., Recknagel, F.: Inducing explanatory rules for the prediction of algal blooms by genetic algorithms. – Environ. int. **27**: 237-242, 2001.

Bott, T.L., Brock, J.T., Baattrup-Pedersen, A., Chambers, P.A., Dodds, W.K., Himbeault, K.T., Lawrence, J.R., Planas, D., Snyder, E., Wolfaardt, G.M.: An evaluation of techniques for measuring periphyton metabolism in chambers. – Can. J. Fisheries aquat. Sci. **54**: 715-725, 1997. [Comparison of methods.]

Bouman, H.A., Platt, T., Sathyendranath, S., Irwin, B.D., Wernand, M.R., Kraay, G.W.: Bio-optical properties of the subtropical North Atlantic. II. Relevance to models of primary production. – Mar. Ecol. Progr. Ser. **200**: 19-34, 2000.

Bowers, D.G., Kratzer, S., Morrison, J.R., Smith, P.S.D., Tett, P., Walne, A.W., Wild-Allen, K.: On the calibration and use of *in situ* ocean colour measurements for monitoring algal blooms. – Int. J. remote Sensing **22**: 359-368, 2001.

Boyd, P.W., Aiken, J., Kolber, Z.: Comparison of radiocarbon and fluorescence based (pump and probe) measurements of phytoplankton photosynthetic characteristics in the Northeast Atlantic Ocean. – Mar. Ecol. Progr. Ser. **149**: 215-226, 1997.

Braud, I., Bessemoulin, P., Menteny, B., Sicot, M., Vandervaere, J.P., Vauclin, M.: Unidimensional modelling of a fallow savannah during the HAPES-Sahel experiment using the SiSPAT model. – J. Hydrol. **189**: 9012-945, 1997.

Bricaud, A., Babin, M., Morel, A., Claustre, H.: Variability in the chlorophyll-specific absorption coefficients of natural phytoplankton: Analysis and parametrization. – J. geophys. Res. **100**: 13,321-13,332, 1995. [Model.]

Calvet, J.-C.: Investigating soil and atmospheric plant water stress using physiological and micrometeorological data. – Agr. Forest Meteorol. **103**: 229-247, 2000.

Campanella, L., Cubadda, F., Sammartino, M.P., Saoncella, A.: An algal biosensor for the monitoring of water toxicity in estuarine environments. – Water Res. **35**: 69-76, 2000. [Schemes of flow cell and experimental apparatus.]

Campbell, B.D., Stafford Smith, D.M., NcKeon, G.M.: Elevated $CO_2$ and water supply interactions in grasslands: a pastures and rangelands management perspective. – Glob. Change Biol. **3**: 175-187, 1997. [Model.]

Carr, G.M., Duthie, H.C., Taylor, W.D.: Models of aquatic plant productivity: a review of the factors that influence growth. – Aquat. Bot. **59**: 195-215, 1997. [Review, 123 ref.]

Cerco, C.F., Moore, K.: System-wide submerged aquatic vegetation model for Chesapeake Bay. – Estuaries **24**: 522-534, 2001.

Cernusca, A., Bahn, M., Chemini, C., Graber, W., Siegwolf, R., Tappeiner, U., Tenhunen, J.: ECOMONT: a combined approach of field measurements and process-based modelling for assessing effects of land-use changes in mountain landscapes. – Ecol. Model. **113**: 167-178, 1998.

Chan, R.K.Y., Un, K.M.: Real-time size distribution, concentration, and biomass measurement of marine phytoplankton with a novel dual-beam laser fluorescence Doppler cytometer. – Appl. Optics **40**: 2956-2965, 2001.

Chen, F., Annan, J.D.: The influence of different turbulence schemes on modelling primary production in a 1D coupled physical-biological model. – J. mar. Syst. **26**: 259-288, 2000.

Chen, J.M., Leblanc, S.G.: Multiple-scattering scheme useful for geometric optical modeling. – IEEE Trans. Geosci. remote Sensing **39**: 1061-1071, 2001. [Radiation in canopy.]

Chen, J.M., Liu, J., Cihlar, J., Goulden, M.L.: Daily canopy photosynthesis model through temporal and spatial scaling for remote sensing applications. – Ecol. Model. **124**: 99-119, 1999.

Chen, W., Chen, J., Cihlar, J.: An integrated terrestrial ecosystem carbon-budget model based on changes in disturbance, climate, and atmospheric chemistry. – Ecol. Model. **135**: 55-79, 2000.

Christian, J.R., Verschell, M.A., Murtugudde, R., Busalacchi, A.J., Mcclain, C.R.: Biogeochemical modelling of the tropical Pacific Ocean. I: Seasonal and interannual variability. – Deep-Sea Res. II **49**: 509-543, 2002.

Cloern, J.E.: Our evolving conceptual model of the coastal eutrophication problem. – Mar. Ecol. Progr. Ser. **210**: 223-253, 2001. [Review, 185 ref.]

Clough, B.F., Ong, J.E., Gong, W.K.: Estimating leaf area index and photosynthetic production in canopies of the mangrove *Rhizophora apiculata*. – Mar. Ecol. Progr. Ser. **159**: 285-292, 1997. [Comparison of 3 methods.]

Collos, Y.: A physiological basis for estimating inorganic carbon release during photosynthesis by natural phytoplankton. – Ecol. Model. **96**: 285-292, 1997. [Model.]

Davis, J.F., Mcdonnell, A.J.: Development of a partitioned-biomass model for rooted macrophyte growth. – Aquat. Bot. **56**: 265-276, 1997.

dePury, D.G.G., Farquhar, G.D.: A commentary on the use of a sun/shade model to scale from the leaf to a canopy. – Agr. Forest Meteorol. **95**: 257-260, 1999.

Dijkstra, P., Nonhebel, S., Grashoff, C., Goudriaan, J., van de Geijn, S.C.: Response of growth and $CO_2$ uptake of spring wheat and faba bean to $CO_2$ concentration under semiarid conditions: Comparing results of field experiments and simulations. – In: Koch, G.W., Mooney, H.A. (ed.): Carbon Dioxide and Terrestrial Ecosystems. Pp. 251-264. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Ps.]

Ditzer, T., Glauner, R., Förster, M., Köhler, P., Huth, A.: The process-based stand growth model Formix 3-Q applied in a GIS environment for growth and yield analysis in a tropical rain forest. – Tree Physiol. **20**: 367-381, 2000.

Dubay, D.M., Madore, M.A.: Computer simulation of plant and crop allocation processes. – In: Pessarakli, M. (ed.): Handbook of Plant and Crop Physiology. 2nd Ed. Pp. 909-913. Marcel Dekker, New York – Basel 2002. [38 ref.]

Ebenhöh, W., Baretta-Bekker, J.G., Baretta, J.W.: The primary production module in the marine ecosystem model ERSEM II, with emphasis on the light forcing. – J. Sea Res. **38**: 173-193, 1997.

Ehleringer, J.R., Sandquist, R., Philips, S.L.: Burning coal seams in northern Utah: a natural system for studies of plant responses to elevated $CO_2$. – In: Raschi, A., Miglietta, F., Tognetti, R., van Garningen, P.R. (ed.): Plant Responses to Elevated $CO_2$. Evidence from Natural Springs. Pp. 56-68. Cambridge University Press, Cambridge – New York – Melbourne 1997.

Falge, E., Ryel, R.J., Alsheimer, M., Tenhunen, J.D.: Effects of stand structure and physiology on forest gas exchange: a simulation study for Norway spruce. – Trees **11**: 436-448, 1997.

Fennel, K., Losch, M., Schröter, J., Wenzel, M.: Testing a marine ecosystem model: sensitivity analysis and parameter optimization. – J. mar. Syst. **28**: 45-63, 2001.

Field, C.B., Chapin, F.S., III, Chiariello, N.R., Holland, E.A., Mooney, H.A.: The Jasper Ridge $CO_2$ experiment: Design and motivation. – In: Koch, G.W., Mooney, H.A. (ed.): Carbon

Dioxide and Terrestrial Ecosystems. Pp. 121-145. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Model; review, 59 ref.]

Fishnan, S., Génard, M.: Movement of photosynthates and water to fruit. – Acta Horticult. **507**: 173-180, 1999.

Franks, P.J.S., Chen, C.: A 3-D prognostic numerical model study of the Georges bank ecosystem. Part II: biological-physical model. – Deep-Sea Res. II **48**: 457-482, 2001.

Frenette, J.-J., Vincent, W.,F., Legendre, L.: Size-dependent C:N uptake by phytoplankton as a function of irradiance: Ecological implications. – Limnol. Oceanogr. **43**: 1362-1368, 1998.

Friedlingstein, P., Joel, G., Field, C.B., Fung, I.Y.: Toward an allocation scheme for global terrestrial carbon models. – Glob. Change Biol. **5**: 755-770, 1999.

Friedrichs, M.A.M.: A data assimilative marine ecosystem model of the central equatorial Pacific: Numerical twin experiments. – J. mar. Res. **59**: 859-894 , 2001.

Gallegos, C.L., Jordan, T.E., Correll, D.L.: Interannual variability in spring bloom timing and magnitude in the Rhode River, Maryland, USA: observations and modeling. – Mar. Ecol. Progr. Ser. **154**: 27-40, 1997.

Ganguli, A.C., Vermeire, L.T., Mitchell, R.B., Wallace, M.C.: Comparison of four nondestructive techniques for estimating standing crop in shortgrass plains. – Agron. J. **92**: 1211-1215, 2000.

Ganis, A.: Radiation transfer estimate in a row canopy: a simple procedure. – Agr. Forest Meteorol. **88**: 67-76, 1997.

Gautier, H., Měch, R., Prusinkiewicz, P., Varlet-Grancher, C., Loup, C.: Prise en compte de la photomorphogenèse dans un modèle architectural de développement du trèfle. – In: Maillars, P., Bonhomme, R. (ed.): Fonctionnement des Peuplements Végétaux sous Contraintes Environnementales. Pp. 385-401. INRA Editions, Paris 2000.

Gautier, H., Měch, R., Prusinkiewicz, P., Varlet-Grancher, C.: 3D architectural modelling of aerial photomorphogenesis in white clover (*Trifolium repens* L.) using L-systems. – Ann. Bot. **85**: 359-370, 2000.

Geček, S., Legović, T.: Nutrients and grazing in modeling the deep chlorophyll maximum. – Ecol. Model. **138**: 143-152, 2001.

Geider, R.J., MacIntyre, H.L., Kana, T.M.: Dynamic model of phytoplankton growth and acclimation: Responses of the balance growth rate and the chlorophyll *a*:carbon ratio to light, nutrient-limitation and temperature. – Mar. Ecol. Progr. Ser. **148**: 187-200, 1997.

Gervais, F., Opitz, D., Behrendt, H.: Influence of small-scale turbulence and large-scale mixing ob phytoplankton primary production. – Hydrobiologia **342**: 95-105, 1997. [Bottle stirrer; turbulence and mixing experimental scheme.]

Gilbert, M., Domin, A., Becker, A., Wilhelm, C.: Estimation of primary productivity by chlorophyll *a in vivo* fluorescence in freshwater phytoplankton. – Photosynthetica **38**: 111-126, 2000.

Gillett, A.G., Crout, N.M.J., Stokes, D.T., Sylvester-Bradley, R., Scott, R.K.: Simple winter wheat green area index model under UK conditions. – J. agr. Sci. **132**: 263-271, 1999.

Gitelson, A.A., Kaufman, Y.J., Merzlyak, M.N.: Use of a green channel in remote sensing of global vegetation from EOS-MODIS. – Remote Sens. Environ. **58**: 289-298, 1996.

Goetz, S.J., Prince, S.D., Goward, S.N., Thawley, M.M., Small, J.: Satellite remote sensing of primary production: an improved production efficiency modeling approach. – Ecol. Model. **122**: 239-255, 1999.

Gong, G.-C., Chang, J., Liang, M.-H.: A photosynthetic-irradiance model for the upwelling region northeast of Taiwan and its application to the East China Sea. – J. geophys. Res. **106**: 19957-19968, 2001.

Gons, H.J., Rijkeboer, M., Bagheri, S., Ruddick, K.G.: Optical teledetection of chlorophyll *a* in estuarine and coastal waters. – Environ. Sci. Technol. **34**: 5189-5192, 2000.

Gonzalez-Real, M.M., Baille, A.: Changes in leaf photosynthetic parameters with leaf position and nitrogen content within a rose plant canopy (*Rosa hybrida*). – Plant Cell Environ. **23**: 351-363, 2000.

González-Villela, R., De La Lanza, G.J., Banderas-Tarabay, A.G.: Dynamic models of primary production in a tropical high-mountain lake: El Sol, Mexico. – In: Munawar, M., Lawrence, S.G., Munawar, I.F., Malley, D.F. (ed.): Aquatic Ecosystem of Mexico: Status and Scope. Pp. 119-134. Backhuys Publ., Leiden 2000.

Gorbunov, M.Y., Falkowski, P.G., Kolber, Z.S.: Measurement of photosynthetic parameters in benthic organisms *in situ* using a SCUBA-based fast repetition rate fluorometer. – Limnol. Oceanogr. **45**: 242-245, 2000. [Scheme of the device.]

Gosselain, V., Hamilton, P.B., Descy, J.-P.: Estimating phyto-plankton carbon from microscopic counts: an application for riverine systems. – Hydrobiologia **438**: 75-90, 2000.

Gould, R.W., Jr., Arnone, R.A.: Estimating the beam attenuation coefficient in coastal waters from AVHRR imagery. – Cont. Shelf Res. **17**: 1375-1387, 1997. [Remote control, reflectance spectra.]

Gould, R.W., Jr., Arnone, R.A.: Remote sensing estimates of inherent optical properties in a coastal environment. – Remote Sens. Environ. **61**: 290-301, 1997. [Production of oceans.]

Granier, A., Biron, P., Lemoine, D.: Water balance, transpiration and canopy conductance in two beech stands. – Agr. Forest Meteorol. **100**: 291-308, 2000.

Green, E.J., MacFarlane, D.W., Valentine, H.T.: Bayesian synthesis for quantifying uncertainty in predictions from process models. – Tree Physiol. **20**: 415-419, 2000.

Grégoire, M., Lacroix, G.: Study of the oxygen budget of the Black Sea waters using a 3D coupled hydrodynamical-biogeochemical model. – J. mar. Systems **31**: 175-202, 2001.

Gregorczyk, A.: Error estimation in plant growth analysis. – Acta Soc. Bot. Pol. **65**: 207-212, 1997.

Gross, H.P., Wurtsbaugh, W.A., Luecke, C., Budy, P.: Fertilization of an oligotrophic lake with a deep chlorophyll maximum: Predicting the effect on primary productivity. – Can. J. Fisheries aquat. Sci. **54**: 1177-1189, 1997.

Grossman-Clarke, S., Pinter, E.J., Kartschall, T., Kimball, B.A., Hunsaker, D.J., Wall, G.W., Garcia, R.L., Lamorte, R.L.: Modelling a spring wheat crop under elevated $CO_2$ and drought. – New Phytol. **150**: 315-335, 2001.

Guichard, F., Bourget, E., Agnard, J.-P.: High-resolution remote sensing in intertidal ecosystems: A low-cost technique to link scale-dependent patterns and processes. – Limnol. Oceanogr. **45**: 328-338, 2000.

Guyot, G.: Photosynthesis and remote sensing – A review of actual and future potentials. – In: Spiteri, A. (ed.): Remore Sensing '96. Pp. 293-297. A.A. Balkema, Rotterdam – Brookfield 1997. [Review, 1 ref.]

Häder, D.-P., Lebert, M., Marangoni, R., Colombetti, G.: ELDONZET – European Light Dosimeter Network hardware and software. – J. Photochem. Photobiol. B **52**: 51-58, 1999.

Håkanson, L., Boulion, V.V.: A practical approach to predict the duration of the growing season for European lakes. – Ecol. Model. **140**: 235-245, 2001.

Hallgren, W.S., Pitman, A.J.: The uncertainty in simulations by a Global Biome Model (BIOME3) to alternative parameter values. – Glob. Change Biol. **6**: 483-495, 2000. [Review, 51 ref.]

Hamilton, D.P., Schladow, S.G.: Prediction of water quality in lakes and reservoirs. Part I – Model description. – Ecol. Model. **96**: 91-110, 1997. [Review, 102 ref.]

Hanba, Y.T., Mori, S., Lei, T.T., Koike, T., Wada, E.: Variations in leaf $\delta^{13}C$ along a vertical profile of irradiance in a temperate Japanese forest. – Oecologia **110**: 253-261, 1997.

Hannon, E., Boyd, P.W., Silvoso, M., Lancelot, C.: Modeling the bloom evolution and carbon flows during SOIREE: Implications for future *in situ* iron-enrichments in the Southern Ocean. – Deep-Sea Res. II **48**: 2745-2773, 2001.

Harashima, A., Tsuda, R., Tanaka, Y., Kimoto, T., Tatsuta, H., Furusawa, K.: Monitoring algal blooms and related biogeochemical changes with a flow-through system deployed on ferries in the adjacent seas of Japan. – In: Kahru, M., Brown, C.W. (ed.): Monitoring Algal Blooms. Pp. 85-112. Springer, Berlin – Heideberg – New York – Barcelona – Budapest – Hongkong – London – Mailand – Paris – Santa Clara – Singapur – Tokio 1997. [Chl; review, 43 ref.]

Hawes, I., Moorhead, D., Sutherland, D., Schmeling, J., Schwarz, A.-M.: Benthic primary production in two perennially ice-covered Antarctic lakes: patterns of biomass accumulation with a model of community metabolism. – Antarct. Sci. **13**: 18-27, 2001.

Herbert, D.A., Fownes, J.H.: Effects of leaf aggregation in a broad-leaf canopy on estimates of leaf area index by the gap-fraction method. – Forest Ecol. Manage. **97**: 277-282, 1997.

Hingston, F.J., Galbraith, J.H., Dimmock, G.M.: Application of the process-based model BIOMASS top *Eucalyptus globulus*subsp. *globulus* plantations on ex-farmland in south western Australia. I. Water use by trees and assessing risk of losses due to drought, – Forest Ecol. Manage. **106**: 141-156, 1998. [Models.]

Hingston, F.J., Galbraith, J.H., Dimmock, G.M.: Application of the process-based model BIOMASS top *Eucalyptus globulus* subsp. *globulus* plantations on ex-farmland in south western Australia. II. Stemwood production and seasonal growth. – Forest Ecol. Manage. **106**: 157-168, 1998.

Hirose, T., Ackerly, D.D., Traw, M.B., Ramseier, D., Bazzaz, F.A.: $CO_2$ elevation, canopy photosynthesis, and optical leaf area index. Ecology **78**: 2339-2350, 1997. [Model.]

Hoch, T.: Modélisation du réseau trophique pélagique et de la production primaire en Manche. – Oceanol. Acta **21**: 871-885, 1998.

Hoch, T., Garreau, P.: Phytoplankton dynamics in the English Channel: a simplified three-dimensional approach.- – J. mar. Syst. **16**: 133-150, 1998.

Hoch, T., Ménesguen, A.: Modelling the biogeochemical cycles of elements limiting primary production in the English Channel. – Mar. Ecol. Progr. Ser. **146**: 189-205, 1997.

Hofmann, M., Wolf-Gladrow, D.A., Takahashi, T., Sutherland, S.C., Six, K.D., Maier-Reimer, E.: Stable carbon isotope distribution of particulate organic matter in the ocean: a model study. – Mar. Chem. **72**: 131-150, 2000.

Huisman, J., Weissing, F.J.: Competition for nutrients and light in a mixed water column: A theoretical analysis. – Amer. Natur. **146**: 536-564, 1995. [Model.]

Hunt, E.R., Jr., Lavigne, M.B., Franklin, S.E.: Factors controlling the decline of net primary production with stand age for balsam fir in Newfoundland assessed using an ecosystem simulation model. – Ecol. Model. **122**: 151-164, 1999.

Huntingford, C., Cox, P.M., Lenton, T.M.: Contrasting responses of a simple terrestrial ecosystem model to global change. – Ecol. Model. **134**: 41-58, 2000.

Idso, S.B.: The poor man's biosphere, including simple techniques for conducting $CO_2$ enrichment and depletion experiments on aquatic and terrestrial plants. – Environ. exp. Bot. **38**: 15-38, 1997. [Review, 33 ref.]

Inoue, Y.: [Remote and non-destructive sensing for precision crop and field management. II. Prospect of remote and non-destructive sensing in precision crop management.] – Jap. J. Crop Sci. **66**: 511-523, 1997. [Review, 209 ref.; in Jap.]

Irmak, A., Jones, J.W.: Use of crop simulation to evaluate antitranspirant effects on tomato growth and yield. – Trans. ASAE **43**: 1281-1289, 2000.

Jager, H.I., Hargrove, W.W., Brandt, C.C., King, A.W., Olson, R.J., Scurlock, J.M.O., Rose, K.W.: Constructive contrasts between modeled and measured climate responses over a regional scale. – Ecosystems **3**: 396-411, 2000. [Net primary production.]

Janssens, I.A., Mousseau, M., Ceulemans, R.: Crop ecosystem responses to climatic change: Tree Crops. – In: Reddy, K.R., Hodges, H.F. (ed.): Climate Change and Global Crop Productivity. Pp. 245-270. CABI Publishing, Wallingford – New York 2000. [Ps; 126 ref.]

Jeffrey, S.W., Welschmeyer, N.A.: Spectrophotometric and fluorometric equation in common use in oceanography. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods. Pp. 597-615. UNESCO Publishing, Paris 1997. [Review, 34 ref.]

Jenkinson, D.S., Meredith, J., Kinyamario, J.I., Warren, G.P., Wong, M.T.F., Harkness, D.D., Bol, R., Coleman, K.: Estimating net primary production from measurements made on soil organic-matter. – Ecology **80**: 2762-2773, 1999. [Model.]

Jin, H., Egashira, S., Chau, K.W.: Carbon to chlorophyll-*a* ratio in modeling long-term eutrophication phenomena. – Water Sci. Technol. **38**: 227-235, 1998.

Johnson, D.W., Ball, J.T.: Interactions between $CO_2$ and nitrogen in forests: Can we extrapolate from the seedling to the stand level? – In: Koch, G.W., Mooney, H.A. (ed.): Carbon Dioxide and Terrestrial Ecosystems. Pp. 283-297. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Model; review, 40 ref.]

Johnson, M.P., Hawkins, S.J., Hartnoll, R.G., Norton, T.A.: The establishment of fucoid zonation on algal-dominated rocky shores: hypotheses derived from a simulation model. – Funct. Ecol. **12**: 259-269, 1998.

Joint, I., Groom, S.B.: Estimation of phytoplankton production from space: current status and future potential of satellite remote sensing. – J. exp. mar. Biol. Ecol. **250**: 233-255, 2000.

Karul, C., Soyupak, S., Çilesiz, A.F., Akbay, N., Germen, E.: Case studies on the use of neural networks in eutrophication modeling. – Ecol. Model. **134**: 145-152, 2000.

Kawamiya, M., Kishi, M.J., Suginohara, N.: An ecosystem model for the North Pacific embedded in a general circulation model. Part I: Model description and characteristics of spacial distributions of biological variables. – J. mar. Syst. **25**: 129-157, 2000. Kawamiya, M., Kishi, M.J., Suginohara, N.: An ecosystem model for the North Pacific embedded in a general circulation model. Part II: Mechanisms forming seasonal variations of chlorophyll. – J. mar. Syst. **25**: 159-178, 2000.

Kayombo, S., Mbwette, T.S.A., Mayo, A.W., Katima, J.H.Y., Jorgensen, S.E.: Modelling diurnal variation of dissolved oxygen in waste stabilization ponds. – Ecol. Model. **127**: 21-31, 2000.

Kellomäki, S., Wang, K.-Y.: Short-term environmental controls of heat and water vapour fluxes above a boreal coniferous forest: model computations compared with measurements by eddy correlation. – Ecol. Model. **124**: 145-173, 1999.

Kelly, J.R., Doering, P.H.: Monitoring and modeling primary production in coastal waters: studies in Massachusetts Bay 1992-1994. – Mar. Ecol. Progr. Ser. **148**: 155-168, 1997.

Kemp, W.M., Brooks, M.T., Hood, R.R.: Nutrient enrichment, habitat variability and trophic transfer efficiency in simple models of pelagic ecosystems. – Mar. Ecol. Progr. Ser. **223** : 73-87, 2001.

Kenefic, L.S., Seymour, R.S.: Leaf area prediction models for *Tsuga canadensis* in Maine. – Can. J. Forest Res. **29**: 1574-1582, 1999.

Kikuta, S.B., Lo Gullo, M.A., Nardini, A., Richter, H., Salleo, S.: Ultrasound acoustic emissions from dehydrating leaves of deciduous and evergreen trees. – Plant Cell Environ. **20**: 1381-1390, 1997.

Kimball, J.S., Thornton, P.E., White, M.A., Running, S.W.: Simulating forest productivity and surface—atmosphere carbon exchange in the BOREAS study region. – Tree Physiol. **17**: 589-599, 1997.

Kimmins, J.P., Mailly, D., Seely, B.: Modelling forest ecosystem net primary production: the hybrid simulation approach used in FORECAST. – Ecol. Model. **122**: 195-224, 1999.

Kirschbaum, M.U.F.: Forest growth and species distribution in a changing climate. – Tree Physiol. **20**: 309-322, 2000. [Model.]

Kitsiou, D., Tsirtsis, G., Karydis, M.: Developing an optimal sampling design. A case study in a coastal marine ecosystem. – Environ. Monitoring Assessment **71**: 1-12, 2001.

Kittas, C., Katsoulas, N., Baille, A.: Transpiration and canopy resistance of greenhouse soilless roses: Measurements and modeling. – Acta Hort. **507**[Bar-Yosef, B., Seginer, I. (ed.): Proceeding of the Third International Workshop on Models for Plant Growth and Control of the Shoot and Root Environments in Greenhouses]: 61-68, 1999.

Kononen, K., Leppänen, J.-M.: Patchiness, scales and controlling mechanisms of cyanobacterial blooms in the Baltic Sea: Application of a multiscale research strategy. – In: Kahru, M., Brown, C.W. (ed.): Monitoring Algal Blooms. Pp. 63-84. Springer, Berlin – Heideberg – New York – Barcelona – Budapest – Hongkong – London – Mailand – Paris – Santa Clara – Singapur – Tokio 1997. [Chl; review, 30 ref.]

Kooijman, S.A.L.M., Dijkstra, H.A., Kooi, B.W.: Light-induced mass turnover in a mono-species community of mixotrophs. – J. theor. Biol. **214**: 233-254, 2002. [Ps; model.]]

Kowe, R., Skidmore, R.E., Whitton, B.A., Pinder, A.C.: Modelling phytoplankton dynamics in the River Swale, an upland river in NE England. – Sci. total Environ. **210/211**: 535-546, 1998.

Kriest, I., Evans, G.T.: A vertically resolved model for phytoplankton aggregation. – Proc. indian Acad. Sci. (Earth Planet. Sci.) **109**: 453-469, 2000.

Kühl, M., Glud, R.N., Borum, J., Roberts, R., Rysgaard, S.: Photosynthetic performance of surface-associated algae below sea ice as measured with a pulse-amplitude-modulated (PAM) fluorometer and $O_2$ microsensors. – Mar. Ecol. Progr. Ser. **223**: 1-14, 2001. [Instrument for measuring below sea ice.]

Küßner, R., Mosandl, R.: Comparison of direct and indirect estimation of leaf area index in mature Norway spruce stands of eastern Germany. – Can. J. Forest Res. **30**: 440-447, 2000.

Kutser, T., Herlevi, A., Kallio, K., Arst, H.: A hyperspectral model for interpretation of passive optical remote sensing data from turbid lakes. – Sci. total Environ. **268**: 47-58, 2001.

Kyewalyanga, M.N., Platt, T., Sathyendranath, S.: Estimation of the photosynthetic action spectrum: implication for primary production models. – Mar. Ecol. Progr. Ser. **146**: 207-223, 1997.

## G. Cultivation of experimental material and phytotronics

Chen, F., Zhang, Y.: High cell density mixotrophic culture of *Spirulina platensis* on glucose for phycocyanin production using a fed-batch system. – Enzyme microb. Technol. **20**: 221-224, 1997.

Evens, T.J., Chapman, D.J., Robbins, R.A., D'Asaro, E.A.: An analytical flat-plate photobioreactor with a spectrally attenuated light source for the incubation of phytoplankton under dynamic light regimes. – Hydrobiologia **434**: 55-62, 2000.

Fernandes, H.L., Veloso, V., Gouveia, L., Empis, J.M., Novais, J.M.: Mild method of pre-concentration of *Dunaliella salina* from culture medium. – Biotechnol. Techniques **11**: 557-559, 1997.

Goldsmith, S.J., Thomas, M.A., Gries, C.: A new technique for photobiont culturing and manipulation. – Lichenologist **29**: 559-569, 1997. [Whole-lichen cultivation for determining Ps, Chl, *etc.*]

Gorenflo, V., Schulze, S., Braun, A.M., Stahl, W.: The tumbling reactor: a new reactor design for biotechnology. Cultivation of the phototrophic micro-alga *Scenedesmus communis*. – Biotechnol. Techniques **12**: 55-61, 1998.

Hai, T., Ahlers, H., Gorenflo, V., Steinbüchel, A.: Axenic cultivation of anoxygenic phototrophic bacteria, cyano-bacteria, and microalgae in a new closed tubular glass photobioreactor. – Appl. Microbiol. Biotechnol. **53**: 383-389, 2000.

Harazono, Y., Chen, Q., Yoshimoto, M.: [Effects of dewdrop on plastic films on light transmittance, temperature and humidity in greenhouses.] – J. agr. Meteorol. **53**: 175-183, 1997. [In Jap., ab: E.]

Hopper, D.A., Stutte, G.W., McCormack, A., Barta, D.J., Heins, R.D., Erwin, J.E., Tibbitts, T.W.: Crop growth requirements. – In: Langhans, R.W., Tibbitts, T.W. (ed.): Plant Growth Chamber Handbook. (North Central Regional Research

Publication No. 340; Iowa Agriculture and Home Economics Experiment Station Special Report No. 99.) Pp. 217-225. Iowa State University, Ames 1997.

Ike, A., Toda, N., Hirata, K., Miyamoto, K.: Hydrogen photoproduction from $CO_2$-fixing microbial biomass: Application of lactic acid fermentation by *Lactobacillus amylovorus*. – J. Ferment. Bioeng. **84**: 428-433, 1997.

Morita, M., Watanabe, Y., Okawa, T., Saiki, H.: Photosynthetic productivity of conical helical tubular photobioreactors incorporating *Chlorella* sp. under various culture medium flow conditions. – Biotechnol. Bioeng. **74**: 136-144, 2001.

Morita, M., Watanabe, Y., Saiki, H.: High photosynthetic productivity of green microalga *Chlorella sorokiniana*. – Appl. Biochem. Biotechnol. **87**: 203-218, 2000. [Conical helical tubular photobioreactor.]

Morita, M., Watanabe, Y., Saiki, H.: Investigation of photobioreactor design for enhancing the photosynthetic productivity of microalgae. – Biotechnol. Bioeng. **69**: 693-698, 2000.

Morita, M., Watanabe, Y., Saiki, H.: Evaluation of photobioreactor heat balance for predicting changes in culture medium temperature due to light irradiation. – Biotechnol. Bioeng. **74**: 466-475, 2001. [Conical helical tubular photobioreactor.]

Morita, M., Watanabe, Y., Saiki, H.: Instruction of microalgal biomass production for practically higher photosynthetic performance using a photobioreactor. – Food Bioproducts Process. **79**: 176-183, 2001. [Conical helical tubular photobioreactor.]

Sawayama, S., Tsukahara, K., Yagishita, T.: Organic acid consumption of phototrophic bacteria in a lighted upflow anaerobic sludge blanket reactor. – J. Biosci. Bioeng. **90**: 241-246, 2000. [Laboratory scale reactor.]

Spomer, L.A., Berry, W.L., Tibbitts, T.W.: Plant culture in solid media. – In: Langhans, R.W., Tibbitts, T.W. (ed.): Plant Growth Chamber Handbook. (North Central Regional Research Publication No. 340; Iowa Agriculture and Home Economics Experiment Station Special Report No. 99). Pp. 105-118. Iowa State University, Ames 1997. [Review, 33 ref.]

Torzillo, G.: Tubular bioreactors. – In: Vonshak, A. (ed.): *Spirulina platensis* (*Arthrospira*). Physiology, Cell-Biology and Biotechnology. Pp. 101-115. Taylor & Francis, London – Bristol 1997. [Review, 29 ref.]

Tredici, M.R., Zittelli, G.C.: Cultivation of *Spirulina* (*Arthrospira*) *platensis* in flat plate reactors. – In: Vonshak, A. (ed.): *Spirulina platensis* (*Arthrospira*). Physiology, Cell-Biology and Biotechnology. Pp. 117-130. Taylor & Francis, London – Bristol 1997. [Review, 34 ref.]

Veen, A., Reuvers, M., Ronçak, P.: Effects of acute and chronic UV-B exposure on a green alga: a continuous culture study using a computer-controlled dynamic light regime. – Plant Ecol. **128**: 28-40, 1997. [Continuous-culture system.]

Vonshak, A.: Outdoor mass production of *Spirulina*: The basic concept. – In: Vonshak, A. (ed.): *Spirulina platensis* (*Arthrospira*). Physiology, Cell Biology and Biotechnology. Pp. 79-99. Taylor & Francis, London – Bristol 1997. [Review, 46 ref.]

Wheeler, R.M., Stutte, G.W., Subbarao, G.V., Yorio, N.C.: Plant growth and human life support for space travel. – In: Pessarakli, M. (ed.): Handbook of Plant and Crop Physiology. Second Edition, Revised and Expanded. Pp. 925-941. Marcel Dekker, New York – Basel 2002. [NASA's Biomass Production Chamber, CGR; review, 119 ref.]

## H. Choice of useful tools and laboratory equipment

Burton, S.G., Kirchmann, S.: Optimised detergent-based method for extraction of a chloroplast membranes-bound enzyme: polyphenol oxidase from tea (*Camellia sinensis*). – Biotechnol. Techniques **11**: 645-648, 1997.

Naessens, M., Leclerc, J.C., Tran-Minh, C.: Fiber optic biosensor using *Chlorella vulgaris* for determination of toxic compounds. – Ecotoxicol. environ. Safety **46**: 181-185, 2000. [Chl fluorescence.]

Oostergetel, G.T., Keegstra, W., Brisson, A.: Automation of specimen selection and data acquisition for protein electron crystallography. – Ultramicroscopy **74**: 47-59, 1998.

Phillips, N., Nagchaudhuri, A., Oren, R., Katul, G.: Time constant for water transport in loblolly pine trees estimated from time series of evaporative demand and stem sapflow. – Trees **11**: 412-419, 1997.

Rakonczay, Z., Seiler, J.R., Samuelson, L.J.: A method for the *in situ* measurement of fine root gas exchange of forest trees. – Environ. exp. Bot. **37**: 107-113, 1997. [Open system with IRGA.]

Ribrioux, S., Kleymann, G., Haase, W., Heitmann, K., Ostermeier, C., Michel, H.: Use of nanogold- and fluorescent-labeled antibody Fv fragments in immuno-cytochemistry. – J. Histochem. Cytochem. **44**: 207-213, 1996. [Bacteriorhodopsin.]

Sanders, C.A., Rodriguez, M., Jr., Greenbaum, E.: Stand-off tissue-based biosensors for the detection of chemical warfare agents using photosynthetic fluorescence induction. – Biosensors Bioelectronics **16**: 439-446, 2001. [Experimental apparatus.]

Smart, D.R., Ritchie, K., Bloom, A.J., Bugbee, B.B.: Nitrogen balance for wheat canopies (*Triticum aestivum* cv. Veery 10) grown under elevated and ambient $CO_2$ concentrations. – Plant Cell Environ. **21**: 753-763, 1998. [System for developing nitrogen balance in canopy.]

Sperry, J.S., Adler, F.R., Campbell, G.S., Comstock, J.P.: Limitation of plant water use by rhizosphere and xylem conductance: results from a model. – Plant Cell Environ. **21**: 347-359, 1998.

Taylor, D.K., Rank, D.R., Keiser, D.R., Smith, B.N., Criddle, R.S., Hansen, L.D.: Modelling temperature effects on growth-respiration relations of maize. – Plant Cell Environ. **21**: 1143-1151, 1998.

Terjung, F.: Photoprotective energy dissipation in higher plant plant leaves investigated by chlo fluorescence decay measurements with additional radiation pulses. – Photosynthetica **35**: 621-629, 1998. [Experimental set-up.]

Tsuda, M., Tyree, M.T.: Plant hydraulic conductance measured by the high pressure flow meter in crop plants. – J. exp. Bot. **51**: 823-828, 2000.

Vos, J.W., Valster, A.H., Hepler, P.K.: Methods for studying cell division in higher plants. – Methods Cell Biol. **61**: 413-437, 1999. [Review, 73 ref.]

Wei, C., Tyree, M.T., Bernink, J.P.: The transmission of gas pressure to xylem fluid pressure when plants are inside a pressure bomb. – J. exp. Bot. **51**: 309-316, 2000.