

BIBLIOGRAPHY

Bibliography of reviews and methods of photosynthesis – 85

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REVIEW PAPERS

- Allen, J.F., Forsberg, J.: Molecular recognition in thylakoid structure and function. – *Trends Plant Sci.* **6**: 317-326, 2001. [75 ref.]
- Allen, L.H., Jr., Boote, K.J.: Crop ecosystem responses to climatic change: soybean. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 133-160. CABI Publishing, Wallingford – New York 2000. [Ps; 85 ref.]
- Anderson, J.M.: Strategies of photosynthetic adaptations and acclimation. – In: Yunus, M., Pathre, U., Mohanty, P. (ed.): *Probing Photosynthesis. Mechanisms, Regulation and Adaptation*. Pp. 283-292. Taylor & Francis, London – New York 2000. [21 ref.]
- Ashton, A.R., Trevanion, S.J., Carr, P.D., Verger, D., Ollis, D.L.: Structural basis for the light regulation of chloroplast NADP malate dehydrogenase. – *Physiol. Plant.* **110**: 314-321, 2000. [28 ref.]
- Bader, K.P., Abdel-Basset, R.: Bioenergetic aspects of photosynthetic gas exchange and respiratory processes in algae and plants. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 299-325. Marcel Dekker, New York – Basel 2002. [127 ref.]
- Balashov, S.P.: Protonation reactions and their coupling in bacteriorhodopsin. – *Biochim. biophys. Acta* **1460**: 75-94, 2000. [178 ref.]
- Bassi, R., Caffarri, S.: Lhc proteins and the regulation of photosynthetic light harvesting function by xanthophylls. – *Photosynth. Res.* **64**: 243-256, 2000. [42 ref.]
- Becker, P., Meinzer, F.C., Wulschleger, S.D.: Hydraulic limitation of tree height: a critique. – *Funct. Ecol.* **14**: 4-11, 2000. [Stomatal conductance; 76 ref.]
- Berlyn, G.P., Cho, J.: Light, moisture, and nutrient use by plants. – In: Ashton, M.S., Montagnini, F. (ed.): *Silvicultural Basis for Agroforestry Systems*. Pp. 9-46. CRC Press Inc., Boca Raton 2000. [Ps; 82 ref.]
- 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.]
- Blatt, M.R.: Reassessing roles for Ca²⁺ in guard cell signalling. – *J. exp. Bot.* **50**: 989-999, 1999. [162 ref.]
- Böger, P.: Mode of action of herbicides affecting carotenogenesis. – *J. Pesticide Sci.* **21**: 473-478, 1996. [40 ref.]
- Bond, B.J.: Age-related changes in photosynthesis of woody plants. – *Trends Plant Sci.* **5**: 349-353, 2000. [36 ref.]
- Bortier, K., Ceulemans, R., de Temmerman, L.: Effect of tropospheric ozone on woody plants. – In: Agrawal, S.B., Agrawal, M. (ed.): *Environmental Pollution and Plant Responses*. Pp. 153-182. Lewis Publishers, Boca Raton – London – New York – Washington 2000. [Ps, Chl, Car; 222 ref.]
- Boutton, T.W.: Stable carbon isotope ratios of soil organic matter and their use as indicators of vegetation and climate change. – In: Boutton, T.W., Yamasaki, S. (ed.): *Mass Spectrometry of Soils*. Pp. 47-82. Marcel Dekker, New York – Basel – Hong Kong 1996. [124 ref.]
- Bowsher, C.G., Tobin, A.K.: Compartmentation of metabolism within mitochondria and plastids. – *J. exp. Bot.* **52**: 513-527, 2001. [123 ref.]
- Brown, L.S.: Reconciling crystallography and mutagenesis: a synthetic approach to the creation of a comprehensive model for proton pumping by bacteriorhodopsin. – *Biochim. biophys. Acta* **1460**: 49-59, 2000. [104 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.]
- Cerovic, Z.G., Samson, G., Morales, F., Tremblay, N., Moya, I.: Ultraviolet-induced fluorescence for plant monitoring: present state and prospects. – *Agronomie* **19**: 543-578, 1999. [Ps; 172 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.

BIBLIOGRAPHY

- Chaerle, L., van der Straeten, D.: Technical focus: Imaging techniques and the early detection of plant stress. – *Trends Plant Sci.* **5**: 495-501, 2000. [Chl; 41 ref.]
- Chalupa, V.: Probíhající změny ve složení zemské atmosféry, kolísání sluneční zářivosti a měnící se růst lesních dřevin. [Atmosphere composition changes, solar irradiance variations, and changing forest tree growth.] – *Lesnictví–Forestry (Praha)* **43**: 481-502, 1997. [In Czech, ab: E; 112 ref.]
- Cheikh, N., Miller, P.W., Kishore, G.: Role of biotechnology in crop productivity in a changing environment. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 425-436. CABI Publishing, Wallingford – New York 2000. [40 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.]
- Cogdell, R.J., Lindsay, J.G.: *Tansley Review No. 109*. The structure of photosynthetic complexes in bacteria and plants: an illustration of the importance of protein structure to the future development of plant science. – *New Phytol.* **145**: 167-196, 2000. [196 ref.]
- Collier, J.L.: Flow cytometry and the single cell in phycology. – *J. Phycol.* **36**: 628-644, 2000. [Chl, Bil; 159 ref.]
- Cowling, S.A.: Plants and temperature–CO₂ uncoupling. – *Science* **285**: 1500-1501, 1999. [Ps; 20 ref.]
- Cowling, S.A., Sykes, M.T.: Physiological significance of low atmospheric CO₂ for plant–climate interactions. – *Quaternary Res.* **52**: 237-242, 1999. [Ps, WUE; 53 ref.]
- Daniell, H., Wiebe, P.O., Fernandez-San Millan, A.: Anti-biotic-free chloroplast genetic engineering – an environmentally friendly approach. – *Trends Plant Sci.* **6**: 237-240, 2001. [15 ref.]
- Danneberger, T.K.: Effects of humidity on plant growth. – In: Wilkinson, R.E. (ed.): *Plant–Environment Interactions*. 2nd Ed. Pp. 343-360. Marcel Dekker, New York – Basel 2000. [Stomatal conductance; 96 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.]
- de la Rosa, F.F.: Physiological mechanisms of herbicide actions. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 773-787. Marcel Dekker, New York – Basel 2002. [Ps; 128 ref.]
- Dencher, N.A., Sass, H.J., Büldt, G.: Water and bacteriorhodopsin: structure, dynamics, and function. – *Biochim. biophys. Acta* **1460**: 192-203, 2000. [65 ref.]
- Denev, I.D., Minkov, I.N.: Structure and function of photosynthetic membranes in higher plants. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 281-297. Marcel Dekker, New York – Basel 2002. [105 ref.]
- Des Marais, D.J.: When did photosynthesis emerge on earth? – *Science* **289**: 1703-1705, 2000. [29 ref.]
- Dismukes, G.C.: Splitting water. – *Science* **292**: 447-448, 2001. [22 ref.]
- Drews, G.: Aerobe, Bacteriochlorophyll-haltige Bakterien. – *Biol. unserer Zeit* **25**(2): 115-119, 1995. [18 ref.]
- Faruqi, A.R., Subramaniam, S.: CCD detectors in high-resolution biological electron microscopy. – *Quart. Rev. Biophys.* **33**: 1-27, 2000. [Bacteriorhodopsin; 43 ref.]
- Frackowiak, D., Goc, J., Waszkowiak, A.: Biophysics in technology and medicine. – *Curr. Topics Biophys.* **24**: 3-13, 2000. [Ps, Chl; 32 ref.]
- Frackowiak, D., Planner, A.: The application of the photothermal methods in biophysics and medicine. – *Res. Adv. Photochem. Photobiol.* **1**: 19-30, 2000. [Photoacoustic and optoacoustic spectroscopy, Ps, Chl, Car; 74 ref.]
- Franko, M.: Recent applications of thermal lens spectrometry in food analysis and environmental research. – *Talanta* **54**: 1-13, 2001. [Car; 87 ref.]
- Giuliano, G., Aquilani, R., Dharmapuri, S.: Metabolic engineering of plant carotenoids. – *Trends Plant Sci.* **5**: 406-409, 2000. [13 ref.]
- Glover, B.J.: Differentiation in plant epidermal cells. – *J. exp. Bot.* **51**: 497-505, 2000. [Stomata; 34 ref.]
- Gust, D., Moore, T.A., Moore, A.L.: Mimicking photosynthetic solar energy transduction. – *Accounts Chem. Res.* **34**: 40-48, 2001. [28 ref.]
- Hagemann, R.: Erwin Baur or Carl Correns: Who really created the theory of plastid inheritance? – *J. Heredity* **91**: 435-440, 2000. [32 ref.]
- Haldrup, A., Jensen, P.E., Lunde, C., Scheller, H.V.: Balance of power: a view of the mechanism of photosynthetic state transitions. – *Trends Plant Sci.* **6**: 301-305, 2001. [40 ref.]
- Hanelt, D.: Photoinhibition of photosynthesis in marine macroalgae. – *Sci. Mar.* **60**(Supl. 1): 243-248, 1996. [50 ref.]
- Hanson, M.R., Köhler, R.H.: GFP imaging: methodology and application to investigate cellular compartmentation in plants. – *J. exp. Bot.* **52**: 529-539, 2001. [Chl; 102 ref.]
- Hayashi, M.: Plant peroxisomes: Molecular basis of the regulation of their function. – *J. Plant Res.* **113**: 103-109, 2000. [41 ref.]
- Heberle, J.: Proton transfer reactions across bacteriorhodopsin and along the membrane. – *Biochim. biophys. Acta* **1458**: 135-147, 2000. [190 ref.]
- Heijne, G. von: Principles of membrane protein assembly and structure. – *Progr. Biophys. mol. Biol.* **66**: 113-139, 1996. [Photosystem reaction centres, bacteriorhodopsin; 202 ref.]
- Hendrix, J.E.: Production-related assimilate transport and partitioning. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 421-448. Marcel Dekker, New York – Basel 2002. [313 ref.]
- Herbert, S.K., Han, T., Vogelmann, T.C.: New applications of photoacoustics to the study of photosynthesis. – *Photosynth. Res.* **66**: 13-31, 2000. [118 ref.]
- 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.]
- Heyn, M.P., Borucki, B., Otto, H.: Chromophore reorientation during the photocycle of bacteriorhodopsin. *Experimental*

- methods and functional significance. – *Biochim. biophys. Acta* **1460**: 60-74, 2000. [66 ref.]
- Horie, T., Baker, J.T., Nakagawa, H., Matsui, T., Kim, H.Y.: Crop ecosystem responses to climatic change: rice. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 81-106. CABI Publishing, Wallingford – New York 2000. [Ps; 82 ref.]
- Hörtensteiner, S., Kräutler, B.: Chlorophyll breakdown in oilseed rape. – *Photosynth. Res.* **64**: 137-146, 2000. [71 ref.]
- Huang, B.: Waterlogging responses and interaction with temperature, salinity, and nutrients. – In: Wilkinson, R.E. (ed.): *Plant-Environment Interactions*. 2nd Ed. Pp. 263-282. Marcel Dekker, New York – Basel 2000. [Ps; 139 ref.]
- Huang, B., Eissenstat, D.M.: Root plasticity in exploiting water and nutrient heterogeneity. – In: Wilkinson, R.E. (ed.): *Plant-Environment Interactions*. 2nd Ed. Pp. 111-132. Marcel Dekker, New York – Basel 2000. [Photosynthates; 129 ref.]
- Imhoff, J.F.: True marine and halophilic anoxygenic phototrophic bacteria. – *Arch. Microbiol.* **176**: 243-254, 2001. [53 ref.]
- 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.]
- Jones, M.R., Fyfe, P.K.: Photosynthesis: New light on biological oxygen production. – *Curr. Biol.* **11**: R318-R321, 2001. [20 ref.]
- Jones, R.I.: Mixotrophy in planktonic protists: an overview. – *Freshwater Biol.* **45**: 219-226, 2000. [34 ref.]
- Kandori, H.: Role of internal water molecules in bacteriorhodopsin. – *Biochim. biophys. Acta* **1460**: 177-191, 2000. [117 ref.]
- Kappen, L., Schroeter, B., Scheidegger, C., Sommerkorn, M., Hestmark, G.: Cold resistance and metabolic activity of lichens below 0 °C. – *Adv. Space Res.* **18**: (12)119-(12)128, 1996. [32 ref.]
- Kataoka, M., Kamikubo, H.: Structures of photointermediates and their implications for the proton pump mechanism. – *Biochim. biophys. Acta* **1460**: 166-176, 2000. [39 ref.]
- Kaulen, A.D.: Electrogenic processes and protein conformational changes accompanying the bacteriorhodopsin photocycle. – *Biochim. biophys. Acta* **1460**: 204-219, 2000. [150 ref.]
- Knaff, D.B.: Oxidation-reduction properties of thioredoxins and thioredoxin-regulated enzymes. – *Physiol. Plant.* **110**: 309-313, 2000. [14 ref.]
- Koch, G.W., Mooney, H.A.: Response of terrestrial ecosystems to elevated CO₂: A synthesis and summary. – In: Koch, G.W., Mooney, H.A. (ed.): *Carbon Dioxide and Terrestrial Ecosystems*. Pp. 415-429. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [9 ref.]
- Koelmans, A.A., van der Heijde, A., Knijff, L.M., Aalderink, R.H.: Integrated modelling of eutrophication fate & effects in aquatic ecosystems. A review. – *Water Res.* **35**: 3517-3536, 2001. [127 ref.]
- Krogmann, D.W.: The golden age of biochemical research in photosynthesis. – *Photosynth. Res.* **63**: 110-121, 2000. [45 ref.]
- Lawlor, D.W., Mitchell, R.A.C.: Crop ecosystem responses to climate change: wheat. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 57-80. CABI Publishing, Wallingford – New York 2000. [101 ref.]
- 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.]
- Lüttge, U.: Light-stress and crassulacean acid metabolism. – *Phyton* **40**: 65-82, 2000. [67 ref.]
- Lüttge, U.: The tonoplast functioning as the master switch for circadian regulation of crassulacean acid metabolism. – *Planta* **211**: 761-769, 2000. [63 ref.]
- Macasev, D., Newbigin, E., Whelan, J., Lithgow, T.: How do plant mitochondria avoid importing chloroplast proteins? Components of the import apparatus Tom20 and Tom22 from *Arabidopsis* differ from their fungal counterparts. – *Plant Physiol.* **123**: 811-816, 2000. [Chloroplast; 37 ref.]
- Madigan, M.T.: Microbiology of nitrogen fixation by anoxygenic photosynthetic bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 915-928. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [100 ref.]
- Madigan, M.T.: Thermophilic anoxygenic phototrophs. Diversity and ecology. – In: Reysenbach, A.-L., Voytek, M., Mancinelli, R. (ed.): *Thermophiles. Biodiversity, Ecology, and Evolution*. Pp. 103-123. Kluwer Academic/Plenum Publishers, New York – Boston – Dordrecht – London – Moscow 2001. [Ps; 68 ref.]
- Madigan, M.T., Ormerod, J.G.: Taxonomy, physiology and ecology of heliobacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 17-30. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Chl; 38 ref.]
- Magazzù, G., Decembrini, F.: Primary production, biomass and abundance of phototrophic picoplankton in the Mediterranean Sea: a review. – *Aquat. microb. Ecol.* **9**: 97-104, 1995. [38 ref.]
- Malinowski, D.P., Belesky, D.P.: Adaptations of endophyte-infected cool-season grasses to environmental stresses: Mechanisms of drought and mineral stress tolerance. – *Crop Sci.* **40**: 923-940, 2000. [193 ref.]
- Mantele, W.: Infrared vibrational spectroscopy of reaction centers. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 627-647. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [101 ref.]
- Marra, J.: Primary production in the North Atlantic: measurements, scaling, and optical determinants. – *Phil. Trans. roy. Soc. London B* **348**: 153-160, 1995. [29 ref.]
- Martin, C., Smith, A.M.: Starch biosynthesis. – *Plant Cell* **7**: 971-985, 1995. [106 ref.]
- Mas, J., van Gernerden, H.: Storage products in purple and green sulfur bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 973-990. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [87 ref.]
- Massacci, A., Loreto, F.: Diffusive resistances to CO₂ entry in the leaves and their limitations to photosynthesis. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop*

BIBLIOGRAPHY

- Physiology. 2nd Ed. Pp. 327-336. Marcel Dekker, New York – Basel 2002. [54 ref.]
- Matsubara, H., Oh-oka, H., Takahashi, Y., Fujita, Y.: Three iron-sulfur proteins encoded by three ORFs in chloroplast and cyanobacteria. – *Photosynth. Res.* **46**: 107-115, 1995. [75 ref.]
- Matsuoka, M.: The gene for pyruvate,orthophosphate dikinase in C4 plants: structure, regulation and evolution. – *Plant Cell Physiol.* **36**: 937-943, 1995. [55 ref.]
- Mayfield, S.P., Yohn, C.B., Cohen, A., Danon, A.: Regulation of chloroplast gene expression. – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **46**: 147-166, 1995. [95 ref.]
- McCarty, R.E., Evron, Y., Johnson, E.A.: The chloroplast ATP synthase: A rotary enzyme? – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **51**: 83-109, 2000. [93 ref.]
- McCarty, R.E., Hightower, K.E.: Functions and structure of the γ subunit of the chloroplast ATP synthase. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 3-6. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [14 ref.]
- McCauley, D.E.: The use of chloroplast DNA polymorphism in studies of gene flow in plants. – *Trends Ecol. Evolut.* **10**: 198-202, 1995. [37 ref.]
- McConnaughay, K.D.M., Coleman, J.S.: Biomass allocation in plants: Ontogeny or optimality? A test along three resource gradients. – *Ecology* **80**: 2581-2593, 1999. [57 ref.]
- McFadden, G., Gilson, P.: Something borrowed, something green: lateral transfer of chloroplasts by secondary endosymbiosis. – *Trends Ecol. Evolut.* **10**: 12-17, 1995. [36 ref.]
- McGuire, A.D., Clein, J.S., Melillo, J.M., J.M., Kicklighter, D.W., Meier, R.A., Vorosmarty, C.J., Serreze, M.C.: Modelling carbon responses of tundra ecosystems to historical and projected climate: sensitivity of pn-Arctic carbon storage to temporal and spatial variation in climate. – *Glob. Change Biol.* **6**(Suppl. 1): 141-159, 2000. [50 ref.]
- McGuire, A.D., Melillo, J.M., Joyce, L.A.: The role of nitrogen in the response of forest net primary production to elevated atmospheric carbon dioxide. – *Annu. Rev. Ecol. Syst.* **26**: 473-503, 1995. [Ps; 135 ref.]
- Medrano, H., Keys, A.J., Lawlor, D.W., Parry, M.A.J., Azcon-Bieto, J., Delgado, E.: Improving plant production by selection for survival at low CO₂ concentrations. – *J. exp. Bot.* **46**: 1389-1396, 1995. [34 ref.]
- Meyer, T.E., Donohue, T.J.: Cytochromes, iron-sulfur, and copper proteins mediating electron transfer from the Cyt *bc*₁ complex to photosynthetic reaction center complexes. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 725-745. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [151 ref.]
- Miginiac-Maslow, M., Johansson, K., Ruelland, E., Issakidis-Bourguet, E., Schepens, I., Goyer, A., Lemaire-Chamley, M., Jacquot, J.-P., Marechal, P. le, Decottignies, P.: Light-activation of NADP-malate dehydrogenase: A highly controlled process for an optimized function. – *Physiol. Plant.* **110**: 322-329, 2000. [53 ref.]
- Miglietta, F., Bindi, M., Vaccari, F.P., Schapendonk, A.H.C.M., Wolf, J., Butterfield, R.E.: Crop ecosystem to climatic change: root and tuberous crops. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 189-212. CABI Publishing, Wallingford – New York 2000. [58 ref.]
- Miranda, E.R., Pattanagul, W., Madore, M.A.: Phloem transport of solutes in crop plants. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 449-465. Marcel Dekker, New York – Basel 2002. [Photosynthates; 94 ref.]
- Misra, A.N., Biswal, A.K.: Thylakoid membrane protein kinase activity as a signal transduction pathway in chloroplasts. – *Photosynthetica* **38**: 323-332, 2000. [108 ref.]
- Misra, A.N., Dilnawaz, F., Misra, M., Biswal, A.K.: Thermoluminescence in chloroplasts as an indicator of alterations in photosystem 2 reaction centre by biotic and abiotic stresses. – *Photosynthetica* **39**: 1-9, 2001. [86 ref.]
- Mohammed, G.H., Binder, W.D., Gillies, S.L.: Chlorophyll fluorescence: A review of its practical forestry applications and instrumentation. – *Scand. J. Forest Res.* **10**: 383-410, 1995. [127 ref.]
- Müller, D.J., Heymann, J.B., Oesterheld, 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.]
- Murata, N.: Genetic engineering of photosynthetic capability under temperature and salinity stresses. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. IV. Pp. 763-770. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [25 ref.]
- Murphy, S.D.S., Rajagopal, S.: UV-B radiation induced alterations in the bioenergetic processes of photosynthesis. – *Photosynthetica* **31**: 481-487, 1995. [43 ref.]
- Nechushtai, R., Cohen, Y., Chitnis, P.R.: Assembly of the chlorophyll-protein complexes. – *Photosynth. Res.* **44**: 165-181, 1995. [145 ref.]
- Nelson, N.: Evolution of organellar proton-ATPases. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 7-12. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [28 ref.]
- Neuhaus, H.E., Emes, M.J.: Nonphotosynthetic metabolism in plastids. – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **51**: 111-140, 2000. [Chloroplast; 152 ref.]
- Nilsen, E.T.: Stem photosynthesis: Extent, patterns, and role in plant carbon economy. – In: *Plant Stems: Physiology and Functional Morphology*. Pp. 223-240. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995. [51 ref.]
- Nimmo, H.G., Carter, P.J., Fewson, C.A., Nelson, J.P.S., Nimmo, G.A., Wilkins, M.B.: Regulation of malate synthesis in CAM plants and guard cells; effects of light and temperature on the phosphorylation of phosphoenolpyruvate carboxylase. – In: Smirnov, N. (ed.): *Environment and Plant Metabolism. Flexibility and Acclimation*. Pp. 35-44. Bios Scientific Publishers, Oxford 1995. [31 ref.]
- Nishio, J.N.: Why are higher plants green? Evolution of the higher plant photosynthetic pigment complement: Opinion article. – *Plant Cell Environ.* **23**: 539-548, 2000. [70 ref.]
- Nitschke, W., Dracheva, S.M.: Reaction center associated cytochromes. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 775-805. Kluwer Academic Publishers, Dordrecht – Boston – London

1995. [160 ref.]
- Nitschke, W., Kramer, D.M., Riedel, A., Liebl, U.: From naphtho- to benzoquinones – (r)evolutionary reorganisations of photosynthetic electron transfer chains. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 945-950. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [17 ref.]
- Nixon, P.J.: Chlororespiration. – *Phil. Trans. roy. Soc. London B* **355**: 1541-1547, 2000. [58 ref.]
- Niyogi, K.K.: Safety valves for photosynthesis. – *Curr. Opin. Plant Biol.* **3**: 455-460, 2000. [62 ref.]
- Nobel, P.S.: Crop ecosystem responses to climatic change: Crassulacean acid metabolism crops. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 315-331. CABI Publishing, Wallingford – New York 2000. [59 ref.]
- Nösberger, J., Blum, H., Fuhrer, J.: Crop ecosystem responses to climatic change: productive grasslands. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 271-291. CABI Publishing, Wallingford – New York 2000. [68 ref.]
- O'Leary, J.W.: Adaptive components of salt tolerance. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 615-622. Marcel Dekker, New York – Basel 2002. [Ps; 62 ref.]
- Oelze, J., Goiecki, J.R.: Membranes and chlorosomes of green bacteria: Structure, composition and development. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 259-278. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [84 ref.]
- Ogbonna, J.C., Tanaka, H.: Light requirement and photosynthetic cell cultivation – Development of processes for efficient light utilization in photobioreactors. – *J. appl. Phycol.* **12**: 207-218, 2000. [58 ref.]
- Okamura, M.Y., Feher, G.: Proton-coupled electron transfer reactions of Q_B in reaction centers from photosynthetic bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 577-594. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [96 ref.]
- Okamura, M.Y., Paddock, M.L., Graige, M.S., Feher, G.: Proton and electron transfer in bacterial reaction centers. – *Biochim. biophys. Acta* **1458**: 148-163, 2000. [99 ref.]
- Olson, J.A., Krinsky, N.I.: Introduction: The colorful, fascinating world of the carotenoids: important physiological modulators. – *FASEB J.* **9**: 1547-1550, 1995.
- Olson, J.M.: 'Evolution of Photosynthesis' (1970), re-examined thirty years later. – *Photosynth. Res.* **68**: 95-112, 2001. [100 ref.]
- Öquist, G., Campbell, D., Clarke, A.K., Gustafsson, P.: The cyanobacterium *Synechococcus* modulates Photosystem II function in response to excitation stress through D1 exchange. – *Photosynth. Res.* **46**: 151-158, 1995. [55 ref.]
- Orr, L., Govindjee: Photosynthesis and the Web: 2001. – *Photosynth. Res.* **68**: 1-28, 2001. [17 ref.]
- Osmond, C.B., Grace, S.C.: Perspectives on photoinhibition and photorespiration in the field: quintessential inefficiencies of the light and dark reactions of photosynthesis? – *J. exp. Bot.* **46**: 1351-1362, 1995. [77 ref.]
- Osteryoung, K.W.: Organelle fission. Crossing the evolutionary divide. – *Plant Physiol.* **123**: 1213-1216, 2000. [Chloroplast; 38 ref.]
- Pakrasi, H.B.: Genetic analysis of the form and function of photosystem I and photosystem II. – *Annu. Rev. Genet.* **29**: 755-776, 1995. [83 ref.]
- Palmer, J.D.: Rubisco rules fall; gene transfer triumphs. – *BioEssays* **17**: 1005-1008, 1995. [31 ref.]
- Palmqvist, K.: Carbon economy in lichens. – *New Phytol.* **148**: 11-36, 2000. [226 ref.]
- Papageorgiou, G.C., Murata, N.: The unusually strong stabilizing effects of glycine betaine on the structure and function of the oxygen-evolving Photosystem II complex. – *Photosynth. Res.* **44**: 243-252, 1995. [52 ref.]
- Papenbrock, J., Grimm, B.: Regulatory network of tetrapyrrole biosynthesis – studies of intracellular signalling involved in metabolic and developmental control of plastids. – *Planta* **213**: 667-681, 2001. [Chl, chloroplast; 107 ref.]
- Parresol, B.R.: Assessing tree and stand biomass: A review with examples and critical comparisons. – *Forest Sci.* **45**: 573-593, 1999. [115 ref.]
- Parson, W.W., Warshel, A.: Theoretical analyses of electron-transfer reactions. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 559-575. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [91 ref.]
- Pattanaugul, W., Miranda, E.R., Madore, M.A.: Carbohydrate synthesis and crop metabolism. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 467-483. Marcel Dekker, New York – Basel 2002. [Photosynthates; 70 ref.]
- Paul, M., Pellny, T., Goddijn, O.: Enhancing photosynthesis with sugar signal. – *Trends Plant Sci.* **6**: 197-200, 2001. [23 ref.]
- Paul, M.J., Foyer, C.H.: Sink regulation of photosynthesis. – *J. exp. Bot.* **52**: 1383-1400, 2001. [167 ref.]
- Paulsen, H.: Chlorophyll *a/b*-binding proteins. – *Photochem. Photobiol.* **62**: 367-382, 1995. [228 ref.]
- 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.]
- Peñarrubia, L., Moreno, J.: Senescence in plants and crops. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 181-203. Marcel Dekker, New York – Basel 2002. [Ps; 237 ref.]
- Pennypacker, B.W.: Differential impact of carbon assimilation on the expression of quantitative and qualitative resistance in alfalfa (*Medicago sativa*). – *Physiol. mol. Plant Pathol.* **57**: 87-93, 2000. [27 ref.]
- Pfannschmidt, T., Allen, J.F., Oelmlüller, R.: Principles of redox control in photosynthetic gene expression. – *Physiol. Plant.* **112**: 1-9, 2001. [74 ref.]
- Pierson, B.K., Castenholz, R.W.: Taxonomy and physiology of filamentous anoxygenic phototrophs. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 31-47. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [CO₂ fixation, carbon metabolism, Chl; 111 ref.]

BIBLIOGRAPHY

- Pinter, P.J., Jr., Kimball, B.A., Garcia, R.L., Wall, G.W., Hunsaker, D.J., LaMorte, R.L.: Free-air CO₂ enrichment: Responses of cotton and wheat crops. – In: Koch, G.W., Mooney, H.A. (ed.): Carbon Dioxide and Terrestrial Ecosystems. Pp. 215-249. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [70 ref.]
- Porra, R.J., Scheer, H.: ¹⁸O and mass spectrometry in chlorophyll research: Derivation and loss of oxygen atoms at the periphery of the chlorophyll macrocycle during biosynthesis, degradation and adaptation. – *Photosynth. Res.* **66**: 159-175, 2000. [69 ref.]
- Portis, A.R., Jr.: The regulation of Rubisco by Rubisco activase. – *J. exp. Bot.* **46**: 1285-1291, 1995. [36 ref.]
- Pospíšilová, J., Synková, H., Rulcová, J.: Cytokinins and water stress. – *Biol. Plant.* **43**: 321-328, 2000. [Ps, Chl; 74 ref.]
- Prasad, M.N.V.: Inhibition of maize leaf chlorophylls, carotenoids and gas exchange functions by cadmium. – *Photosynthetica* **31**: 635-640, 1995. [36 ref.]
- Pritchard, S.G., Rogers, H.H., Prior, S.A., Peterson, C.M.: Elevated CO₂ and plant structure: a review. – *Glob. Change Biol.* **5**: 807-837, 1999. [Ps; 162 ref.]
- Proctor, M.C.F.: The bryophyte paradox: tolerance of desiccation, evasion of drought. – *Plant Ecol.* **151**: 41-49, 2000. [Ps, Chl; 60 ref.]
- Raines, C.A., Harrison, E.P., Ölçer, H., Lloyd, J.C.: Investigating the role of the thiol-regulated enzyme sedoheptulose-1,7-bisphosphatase in the control of photosynthesis. – *Physiol. Plant.* **110**: 303-308, 2000. [48 ref.]
- Ramirez, O.A.: The carbon cycle and the value of forests as a carbon sink: a tropical case study. – In: Dore, M.H.I., Guevara, R. (ed.): Sustainable Forest Management and Global Climate Change: Selected Case Studies from the Americas. Pp. 107-147. Edward Elgar Publ., Cheltenham – Northampton 2000. [36 ref.]
- Rao, K.K., Hall, D.O.: Hydrogen production by cyanobacteria: Potential, problems and prospects. – *J. mar. Biotechnol.* **4**: 10-15, 1996. [43 ref.]
- Raven, J.A.: Scaling the seas. – *Plant Cell Environ.* **18**: 1090-1100, 1995. [94 ref.]
- Reddy, K.R., Hodges, H.F., Kimball, B.A.: Crop ecosystem responses to climatic change: cotton. – In: Reddy, K.R., Hodges, H.F. (ed.): Climate Change and Global Crop Productivity. Pp. 161-187. CABI Publishing, Wallingford – New York 2000. [Ps; 66 ref.]
- Reddy, K.R., Hodges, H.F., McKinion, J.M.: Cotton crop responses to a changing environment. – In: Rosenzweig, C., Allen, L.H., Jr., Harper, L.A., Hollinger, S.E., Jones, J.W. (ed.): Climate Change and Agriculture: Analysis of Potential International Impacts. Pp. 3-30. American Society of Agronomy, Madison 1995. [Ps model; 37 ref.]
- Reich, P.B., Koike, T., Gower, S.T., Schoettle, A.W.: Causes and consequences of variation in conifer leaf life-span. – In: Smith, W.K., Hinckley, T.M. (ed.): Ecophysiology of Coniferous Forests. Pp. 225-254. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995. [95 ref.]
- Reith, M.: Molecular biology of rhodophyte and chromophyte plastids. – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **46**: 549-575, 1995. [112 ref.]
- Rhee, K.-H.: Photosystem II: The solid structural era. – *Annu. Rev. Biophys. biomol. Structure* **30**: 307-328, 2001. [140 ref.]
- Richmond, A.: Microalgal biotechnology at the turn of the millennium. A personal view. – *J. appl. Phycol.* **12**: 441-451, 2000. [19 ref.]
- Riebesell, U.: Carbon fix for a diatom. – *Nature* **407**: 959-960, 2000. [8 ref.]
- Rodermel, S.: Pathways of plastid-to-nucleus signaling. – *Trends Plant Sci.* **6**: 471-478, 2001. [78 ref.]
- Rodermel, S., Spalding, M., Miller, A.: Influence of source strength on leaf developmental programming. – In: Pessarakli, M. (ed.): Handbook of Plant and Crop Physiology. 2nd Ed. Pp. 117-126. Marcel Dekker, New York – Basel 2002. [Ps; 51 ref.]
- Rontani, J.-F.: Visible light-dependent degradation of lipidic phytoplanktonic components during senescence: a review. – *Phytochemistry* **58**: 187-202, 2001. [Chl, Car; 76 ref.]
- Rothschild, L.J.: Algal physiology at high temperature, low pH, and variable pCO₂. Implications for evolution and ecology. – In: Reysenbach, A.-L., Voytek, M., Mancinelli, R. (ed.): Thermophiles. Biodiversity, Ecology, and Evolution. Pp. 125-142. Kluwer Academic/Plenum Publishers, New York – Boston – Dordrecht – London – Moscow 2001. [Ps; 71 ref.]
- Roy, H., Hubbs, A., Gilson, M., Chaudhari, P.: Rubisco and the chaperonins. – In: Mathis, P. (ed.): Photosynthesis: from Light to Biosphere. Vol. V. Pp. 53-58. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [19 ref.]
- Rutherford, A.W., Faller, P.: The heart of photosynthesis in glorious 3D. – *Trends biochem. Sci.* **26**: 341-344, 2001. [20 ref.]
- Sage, R.F.: Was low atmospheric CO₂ during the Pleistocene a limiting factor for the origin of agriculture? – *Glob. Change Biol.* **1**: 93-106, 1995. [Ps; 117 ref.]
- Saitô, H., Tuzi, S., Yamaguchi, S., Tanio, M., Naito, A.: Conformation and backbone dynamics of bacteriorhodopsin revealed by ¹³C-NMR. – *Biochim. biophys. Acta* **1460**: 39-48, 2000. [52 ref.]
- Sandmann, G.: Carotenoid biosynthesis and biotechnological application. – *Arch. Biochem. Biophys.* **385**: 4-12, 2001. [57 ref.]
- Sandmann, G., Böger, P.: Herbicide. – In: Hock, B., Elstner, E.F. (ed.): Schadwirkungen auf Pflanzen. 3rd Ed. Pp. 155-174. Spektrum Akad. Verlag, Heidelberg – Berlin – Oxford 1995. [Ps, Car; 15 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.]
- Scheer, H., Hartwich, G.: Bacterial reaction centers with modified tetrapyrrole chromophores. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): Anoxygenic Photosynthetic Bacteria. Pp. 649-663. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [106 ref.] [88 ref.]
- Schleiff, E., Soll, J.: Travelling of proteins through membranes: translocation into chloroplasts. – *Planta* **211**: 449-456, 2000. [83 ref.]

- Schlitter, J., Wildner, G.F.: The kinetics of conformation change as determinant of Rubisco's specificity. – *Photosynth. Res.* **65**: 7-13, 2000. [30 ref.]
- Schoefs, B.: Chlorophyll biosynthesis during plant greening. – In: Pessaraki, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 265-279. Marcel Dekker, New York – Basel 2002. [134 ref.]
- Schubert, W.D., Klukas, O., Krauß, N., Saenger, W., Fromme, P., Witt, H.T.: Present state of the crystal structure analysis of photosystem I at 4.5 Å resolution. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 3-10. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [23 ref.]
- Schulze, E.-D., Caldwell, M.M.: Overview: perspectives in ecophysiological research of photosynthesis. – In: Schulze, E.-D., Caldwell, M.M. (ed.): *Ecophysiology of Photosynthesis*. Pp. 553-564. Springer-Verlag, Berlin – Heidelberg – New York 1995. [30 ref.]
- Schürmann, P., Jacquot, J.-P.: Plant thioredoxin systems revisited. – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **51**: 371-400, 2000. [Chloroplast; 169 ref.]
- Sebban, P., Maróti, P., Hanson, D.K.: Electron and proton transfer to the quinones in bacterial photosynthetic reaction centers: Insight from combined approaches of molecular genetics and biophysics. – *Biochimie* **77**: 677-694, 1995. [67 ref.]
- Senge, M.O., Smith, K.M.: Biosynthesis and structures of the bacteriochlorophylls. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 137-151. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [85 ref.]
- Servaites, J.C., Geiger, D.R.: Regulation of of ribulose-1,5-bisphosphate carboxylase/oxygenase by metabolites. – *J. exp. Bot.* **46**: 1277-1283, 1995. [32 ref.]
- Šesták, Z., Čatský, J.: Bibliography of reviews and methods of photosynthesis – 83. – *Photosynthetica* **38**: 291-320, 2000. [850 ref.]
- Šesták, Z., Čatský, J.: Bibliography of reviews and methods of photosynthesis – 84. – *Photosynthetica* **39**: 131-160, 2001. [874 ref.]
- Sharekey, T.D., Laporte, M.M., Micallef, B.J., Shewmaker, C.K., Oakes, J.V.: Sucrose synthesis, temperature, and plant yield. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 635-640. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [24 ref.]
- Shimada, K.: Aerobic anoxygenic phototrophs. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 1083-1106. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [106 ref.]
- Shiozawa, J.A.: A foundation for the genetic analysis of green sulfur, green filamentous and heliobacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 1159-1173. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [74 ref.]
- Sirevåg, R.: Carbon metabolism in green bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 871-883. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [66 ref.]
- Smirnov, N.: Antioxidant systems and plant responses to the environment. – In: Smirnov, N. (ed.): *Environment and Plant Metabolism. Flexibility and Acclimation*. Pp. 217-243. Bios Scientific Publishers, Oxford 1995. [Chl; 136 ref.]
- Smirnov, N.: Metabolic flexibility in relation to the environment. – In: Smirnov, N. (ed.): *Environment and Plant Metabolism. Flexibility and Acclimation*. Pp. 1-16. Bios Scientific Publishers, Oxford 1995. [Ps; 65 ref.]
- Smith, B.N., Harris, L.C., McCarlie, V.W., Stradling, D.L., Thygeson, T., Walker, J., Criddle, R.S., Hansen, L.D.: Time, plant growth, respiration, and temperature. – In: Pessaraki, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 1-11. Marcel Dekker, New York – Basel 2002. [Ps; 39 ref.]
- Smith, R.C., Cullen, J.J.: Effects of UV radiation on phytoplankton. – *Rev. Geophys.* **1995**(Suppl.): 1211-1223, 1995. [Ps; 53 ref.]
- Soll, J.: New insights into the protein import machinery of the chloroplast's outer membrane. – *Bot. Acta* **108**: 277-282, 1995. [59 ref.]
- Soll, J., Seedorf, M.: The protein import machinery of chloroplasts. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 725-730. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [26 ref.]
- Srbová, M., Wilhelmová, N., Wilhelm, J.: Molekulární mechanismy stárnutí živočichů a rostlin vycházející z oxidačního stresu. [Molecular mechanisms of animal and plant ageing ensuing from oxidative stress.] – *Biol. Listy (Praha)* **66**: 203-220, 2001. [Chloroplast; in Czech, ab: E; 98 ref.]
- Srivastava, A., Strasser, R.J.: How do land plants respond to stress temperature and stress light? – *Arch. Sci. Genève* **48**: 135-145, 1995. [33 ref.]
- Stadnichuk, I.N.: Phycobiliproteins: Determination of chromophore composition and content. – *Phytochem. Anal.* **6**: 281-288, 1995. [73 ref.]
- Staiger, C.J.: Signaling to the actin cytoskeleton in plants. *Annu. Rev. Plant Physiol. Plant mol. Biol.* **51**: 257-288, 2000. [Chloroplast, stomata; 194 ref.]
- Stal, L.J.: Tanley review No. 84. Physiological ecology of cyanobacteria in microbial mats and other communities. – *New Phytol.* **131**: 1-32, 1995. [Ps; 181 ref.]
- Stenberg, P., DeLucia, E.H., Schoettle, A.W., Smolander, H.: Photosynthetic light capture and processing from cell to canopy. – In: *Resource Physiology of Conifers*. Pp. 3-38. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995. [110 ref.]
- Stitt, M.: The use of transgenic plants to study the regulation of plants carbohydrate metabolism. – *Aust. J. Plant Physiol.* **22**: 635-646, 1995. [66 ref.]
- Stitt, M., Sonnewald, U.: Regulation of metabolism in transgenic plants. – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **46**: 341-368, 1995. [183 ref.]
- Stowell, M.H.B., Rees, D.C.: Structure and stability of membrane proteins. – *Adv. Protein Chem.* **46**: 279-311, 1995. [Ps, chloroplast, bacteriorhodopsin; 105 ref.]
- Struve, W.S.: Theory of electronic energy transfer. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.):

BIBLIOGRAPHY.

- Anoxygenic Photosynthetic Bacteria. Pp. 297-313. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Chl, Car; 36 ref.]
- Stys, D.: Stacking and separation of photosystem I and photosystem II in plant thylakoid membranes: A physico-chemical view. – *Physiol. Plant.* **95**: 651-657, 1995. [33 ref.]
- Subbarao, G.V., Johansen, C.: Transpiration efficiency: Avenues for genetic improvement. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 835-855. Marcel Dekker, New York – Basel 2002. [Ps; 167 ref.]
- Subramaniam, S., Henderson, R.: Crystallographic analysis of protein conformational changes in the bacteriorhodopsin photocycle. – *Biochim. biophys. Acta* **1460**: 157-165, 2000. [21 ref.]
- Sundström, V., van Grondelle, R.: Kinetics of excitation transfer and trapping in purple bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 349-372. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [164 ref.]
- Tabita, F.R.: The biochemistry and metabolic regulation of carbon metabolism and CO₂ fixation in purple bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 885-914. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [208 ref.]
- Takamiya, K., Tsuchiya, T., Ohta, H.: Degradation pathway(s) of chlorophyll: what has gene cloning revealed? – *Trends Plant Sci.* **5**: 426-431, 2000. [51 ref.]
- Talarico, L., Maranzana, G.: Light and adaptive responses in red macroalgae: an overview. – *J. Photochem. Photobiol. B* **56**: 1-11, 2000. [Chl, Car, Bil; 80 ref.]
- Talling, J.F.: Phytoplankton as an increasingly compound photosynthetic system: an historical perspective. – *Hydrobiologia* **315**: 9-14, 1995. [67 ref.]
- Telfer, A., Barber, J.: Role of carotenoid bound to the photosystem II reaction centre. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. IV. Pp. 15-20. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [33 ref.]
- Terashima, I., Hikosaka, K.: Comparative ecophysiology of leaf and canopy photosynthesis. – *Plant Cell Environ.* **18**: 1111-1128, 1995. [174 ref.]
- Terzaghi, W.B., Cashmore, A.R.: Light-regulated transcription. – *Annu. Rev. Plant Physiol. Plant mol. Biol.* **46**: 445-474, 1995. [Chloroplast; 172 ref.]
- Thomas, H., Ougham, H., Hörtensteiner, S.: Recent advances in the cell biology of chlorophyll catabolism. – *Adv. bot. Res.* **35**: 1-52, 2001. [276 ref.]
- Thornber, J.P.: Thirty years of fun with antenna-pigment-proteins and photochemical reaction centres: A tribute to the people who have influenced my career. – *Photosynth. Res.* **44**: 3-22, 1995. [102 ref.]
- Tommos, C., Babcock, G.T.: Proton and hydrogen currents in photosynthetic water oxidation. – *Biochim. biophys. Acta* **1458**: 199-219, 2000. [137 ref.]
- Trebst, A., Depka, B.: Polyphenol oxidase and photosynthesis research. – *Photosynth. Res.* **46**: 41-44, 1995. [40 ref.]
- Tseng, C.K.: Algal biotechnology industries and research activities in China. – *J. appl. Phycol.* **13**: 375-380, 2001. [Mass cultures; 28 ref.]
- Vácha, F.: The role of oxygen in photosynthesis. – *Photosynthetica* **31**: 321-334, 1995. [87 ref.]
- Vacuia, R., Krajčovič, J.: Interakcia-jadro – chloroplast: signalizácia a import. [Interaction between nucleus and chloroplasts: signalling and import.] – *Biol. Listy (Praha)* **66**: 81-111, 2001. [In Slovak, ab: E; 135 ref.]
- Valenzuela, H.R., DeFrank, J.: Agroecology of tropical underground crops for small-scale agriculture. – *CRC crit. Rev. Plant Sci.* **14**: 213-238, 1995. [LAI; 241 ref.]
- van Amerongen, H., van Grondelle, R.: Transient absorption spectroscopy in study of processes and dynamics in biology. – In: Abelson, J.N., Simon, M.I. (ed.): *Methods in Enzymology*. Vol. 246. Pp. 201-226. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995. [56 ref.]
- van Gernerden, H., Mas, J.: Ecology of phototrophic sulfur bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 49-85. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [217 ref.]
- van Gorkom, H.J.: Current questions on optical properties and energy transfer in the reaction center of photosystem II. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 437-442. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [44 ref.]
- van Wijk, K.J.: Proteomics of the chloroplast: experimentation and prediction. – *Trends Plant Sci.* **5**: 420-425, 2000. [55 ref.]
- Váró, G.: Analogies between halorhodopsin and bacteriorhodopsin. – *Biochim. biophys. Acta* **1460**: 220-229, 2000. [117 ref.]
- Ventosa, A., Nieto, J.J.: Biotechnological applications and potentialities of halophilic microorganisms. – *World J. Microbiol. Biotechnol.* **11**: 85-94, 1995. [92 ref.]
- Verméglio, A., Joliot, P., Joliot, A.: Organization of electron transfer components and supercomplexes. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 279-295. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [101 ref.]
- Vernet, M., Kozłowski, 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; 105 ref.]
- Vignais, P.M., Toussaint, B., Colbeau, A.: Regulation of hydrogenase gene expression. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 1075-1190. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [131 ref.]
- Volk, M., Ogrodnik, A., Michel-Beyerle, M.-E.: The recombination dynamics of the radical pair P⁺H in external magnetic and electric fields. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 595-626. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [153 ref.]
- Voronin, P.Yu., Manzhulin, A.V., Myasoedov, N.A., Balkonin, Yu.V., Terent'eva, E.I.: Morfologicheskii tip i fotosinteticheskaya funktsiya list'ev C₄-rastenii pri dlitel'nom zasolenii pochvy. [Morphological types and photosynthesis of

- C₄ plant leaves under long-term soil salinity.] – *Fiziol. Rast.* **42**: 138-143, 1995. [In R; 35 ref.]
- Vothknecht, U.C., Soll, J.: Protein import: the hitchhikers guide into chloroplasts. – *Biol. Chem.* **381**: 887-897, 2000. [119 ref.]
- Vu, J.C.V., Allen, L.H., Jr., Gallo-Meagher, M.: Crop plant responses to rising CO₂ and climate change. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 35-55. Marcel Dekker, New York – Basel 2002. [Ps; 237 ref.]
- Walton, D.C., Li, Y.: Absciscic acid biosynthesis and metabolism. – In: Davies, P.J. (ed.): *Plant Hormones. Physiology, Biochemistry and Molecular Biology*. Pp. 140-157. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Car; 44 ref.]
- Watling, J.R., Press, M.C., Quick, W.P.: Elevated CO₂ induces biochemical and ultrastructural changes in leaves of the C₄ cereal sorghum. – *Plant Physiol.* **123**: 1143-1152, 2000. [48 ref.]
- Webber, A.N., Bingham, S.E., Lee, H.: Genetic engineering of thylakoid protein complexes by chloroplast transformation in *Chlamydomonas reinhardtii*. – *Photosynth. Res.* **44**: 191-205, 1995. [93 ref.]
- Weckesser, J., Mayer, H., Schultz, G.: Anoxygenic phototrophic bacteria: Model organisms for studies on cell wall macromolecules. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 207-230. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [130 ref.]
- Wettstein, D. von, Gough, S., Kannangara, C.G.: Chlorophyll biosynthesis. – *Plant Cell* **7**: 1039-1057, 1995. [104 ref.]
- Whatley, F.R.: Photosynthesis by isolated chloroplasts: The early work in Berkeley. – *Photosynth. Res.* **46**: 17-26, 1995. [46 ref.]
- Widholm, J.M.: Photosynthetic plant cell cultures: an overview. – In: Carre, F., Chagvardieff, P. (ed.): *Ecophysiology and Photosynthetic in vitro Cultures*. Pp. 15-24. CEA, Saint-Paul-lez-Durance 1995. [42 ref.]
- Williams, J.C., Taguchi, A.K.W.: Genetic manipulation of purple photosynthetic bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 1029-1065. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [425 ref.]
- Wilson, W.H., Fuller, N.J., Mann, N.H., Carr, N.G.: Marine phage and viruses: How do they affect primary productivity? In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 737-741. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [19 ref.]
- Wise, R.R.: Chilling-enhanced photooxidation: The production, action and study of reactive oxygen species produced during chilling in the light. – *Photosynth. Res.* **45**: 79-97, 1995. [200 ref.]
- Woodbury, N.W., Allen, J.P.: The pathway, kinetics and thermodynamics of electron transfer in wild type and mutant reaction centers of purple nonsulfur bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 527-557. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [149 ref.]
- Woodward, F.I., Kelly, C.K.: The influence of CO₂ concentration on stomatal density. – *New Phytol.* **131**: 311-327, 1995. [75 ref.]
- Xu, D.-Q., Shen, Y.-K.: Photosynthetic efficiency and crop yield. – In: Pessarakli, M. (ed.): *Handbook of Plant and Crop Physiology*. 2nd Ed. Pp. 821-834. Marcel Dekker, New York – Basel 2002. [125 ref.]
- Yang, M., Agarwal, R., Fleming, G.R.: The mechanism of energy transfer in the antenna of photosynthetic purple bacteria. – *J. Photochem. Photobiol.* **A142**: 107-119, 2001. [84 ref.]
- Young, K.J., Long, S.P.: Crop ecosystem responses to climatic change: Maize and sorghum. – In: Reddy, K.R., Hodges, H.F. (ed.): *Climate Change and Global Crop Productivity*. Pp. 107-131. CABI Publishing, Wallingford – New York 2000. [Ps; 71 ref.]
- Zacharias, H.: Emil Heitz (1892-1995): Chloroplasts, heterochromatin, and polytene chromosomes. – *Genetics* **141**: 7-14, 1995. [80 ref.]
- Zannoni, D.: Aerobic and anaerobic electron transport chains in anoxygenic phototrophic bacteria. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 949-971. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [244 ref.]
- Zelitch, I.: Travels in a world of small science. – *Photosynth. Res.* **67**: 157-176, 2001. [Ps; 58 ref.]
- Zerges, W.: Translation in chloroplasts. – *Biochimie* **82**: 583-601, 2000. [152 ref.]
- Zinth, W., Arlt, T., Penzkofer, H., Hamm, P., Bibikova, M., Dohse, B., Oesterhelt, D., Meyer, M., Scheer, H.: Ultrafast infrared and visible spectroscopy of bacterial reaction centers. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 389-394. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [16 ref.]
- Zuber, H., Cogdell, R.J.: Structure and organization of purple bacterial core antenna complexes. – In: Blankenship, R.E., Madigan, M.T., Bauer, C.E. (ed.): *Anoxygenic Photosynthetic Bacteria*. Pp. 315-348. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [116 ref.]

METHODOLOGICAL PAPERS

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

- Adam, N.R., Wall, G.W.: Multipurpose cryogenic surface apparatus: A liquid nitrogen-chilled sample tray. – *Crop Sci.* **41**: 755-758, 2001. [RuBPCO, PEPC.]
- Ajiki, S., Toyotama, H., Hara, M., Miyake, J.: Light-induced electrical response of chromatophore film in a semi-wet photocell with an agar layer containing an electron mediator. – *Bioelectrochem. Bioenerg.* **43**: 71-75, 1997. [Photocell scheme.]
- Akita, M., Nielsen, E., Keegstra, K.: Identification of protein transport complexes in the chloroplastic envelope mem-

BIBLIOGRAPHY

- branes via chemical cross-linking. – *J. Cell Biol.* **136**: 983-994, 1997.
- Moczygemba, C., Guidry, J., Jones, K.L., Gomes, C.M., Teixeira, M., Wittung-Stafshede, P.: High stability of a ferredoxin from the hyperthermophilic archaeon *A. ambivalens*: Involvement of electrostatic interactions and cofactors. – *Protein Sci.* **10**: 1539-1548, 2001. [Model.]
- Schubert, H., Matthuis, H.C.P., Mur, L.R.: *In vivo* assay of P700 redox changes in the cyanobacterium *Fremyella diplosiphon* and the role of cytochrome *c* oxidase in regulation of photosynthetic electron transfer. – *Photosynthetica* **31**: 517-527, 1995.
- Schulte, A., Bradley, L., II: High-pressure near-infrared Raman spectroscopy of bacteriorhodopsin light to dark adaptation. – *Biochem. J.* **69**: 1554-1562, 1995. [Experimental set-up for high-pressure Raman spectroscopy.]
- Schumann, D., Bickel-Sandkötter, S.: Crosslinking the F₁-part of chloroplast ATPase in different conformational states. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 91-94. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Schütz, M., Shahak, Y., Padan, E., Hauska, G.: Purification and characterization of the sulfide-quinone reductase (SQR) of *Rhodobacter capsulatus* DSM 155. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 673-676. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Semenihina, A., Popova, T., Schnarrenberger, C., De Carvalho, M.A.A.P.: Purification and some catalytic properties of glucose-6-phosphate dehydrogenase isoforms from barley leaves. – *Photosynthetica* **39**: 299-304, 2001.
- Semenov, A.Y., Bloch, D.A., Gupta, O.A., Ugulava, N.B.: Electrogenic reactions in the high-potential segment of the cytochrome *b₆L*-complex. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 513-518. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Šetlíková, E., Budáč, P., Sofrová, D.: Isolation of oxygen evolving PSII particles and PSII reaction centres from the filamentous cyanobacterium *Spirulina platensis*. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 695-698. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Šetlíková, E., Ritter, S., Hienerwadel, R., Kopecký, J., Komenda, J., Welte, W., Šetlík, I.: Purification of a Photosystem II reaction center from a thermophilic cyanobacterium using immobilized metal affinity chromatography. – *Photosynth. Res.* **43**: 201-211, 1995.
- Shibata, H., Yamashita, H., Akiyoshi, J., Sano, S., Yokota, A.: Occurrence of ribose 1,5-bisphosphate isomerase in spinach chloroplasts and its properties. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 265-268. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Shinaoka, T., Yokota, A., Miyake, C.: Purification and characterization of chloroplast dehydroascorbate reductase from spinach leaves. – *Plant Cell Physiol.* **36**: 1110-1118, 2000.
- Shingles, R., McCarty, R.A.: Production of membranes vesicles by extrusion: Size distribution, enzyme activity, and orientation of plasma membrane and chloroplast inner-envelope membrane vesicles. – *Anal. Biochem.* **229**: 92-98, 1995.
- Sigalat, C., Pitard, B., Haraux, F.: Tight proton coupling in membrane-bound CF₀CF₁ reactivated by high concentrations of tentoxin. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 159-162. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Smith, M.D., Licatalosi, D.D., Thompson, J.E.: Co-association of cytochrome *f* catabolites and plastid-lipid-associated protein with chloroplast lipid particles. – *Plant Physiol.* **124**: 211-221, 2000. [Isolation of plastoglobuli and lipid-protein particles.]
- Somsen, O.J.G., van Grondelle, R., van Amerongen, H.: Spectral moments facilitate the analysis of circular dichroism spectra. Application to chlorosomes from *Chloroflexus aurantiacus*. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 263-266. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Song, X.-Z., Gibbs, S.P.: Photosystem I is not segregated from photosystem II in the green alga *Tetraselmis subcordiformis*. An immunogold and cytochemical study. – *Protoplasma* **189**: 267-280, 1995.
- Spalding, E.P.: An apparatus for studying rapid electrophysiological responses to light demonstrated on *Arabidopsis* leaves. – *Photochem. Photobiol.* **62**: 934-939, 1995.
- Spittel, M., Andrée, S., Kirchhoff, H., Weis, E.: Control of linear electron flow by redistribution of cyt *b₆f* from grana to stroma lamellae in 'state 2'. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 209-215. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Strasser, R.J., Stirbet, A.D.: Estimation of the energetic connectivity of PS II centres in plants using the fluorescence rise O-J-I-P. Fitting of experimental data to three different PS II models. – *Mathematics Computers Simulation* **56**: 451-461, 2001.
- Suzuki, H., Hirakawa, T., Sasaki, S., Karube, I.: An integrated module for sensing pO₂, pCO₂, and pH. – *Anal. chim. Acta* **405**: 57-65, 2000.
- Svensson, B., Styring, S.: The structural environment of the tyrosyl radicals in Photosystem II. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 209-215. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model for hydrogen bonding and proton donation.]
- Tamiaki, H., Amakawa, M., Holzwarth, A.R., Schaffner, K.: Synthetic metallochlorin aggregates as models for supramolecular antenna complexes in chlorosomes of green photosynthetic bacteria. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 61-64. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Tauber, A.Y., Helaya, J., Tkachenko, N.V., Lemmetyinen, H., Kilpeläinen, I., Hynninen, P.H.: Investigations of photoinduced electron transfer in pyropheophytin-anthraquinone model systems. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 815-818.

- Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Teuber, M., Rögner, M., Berry, S.: Fluorescent probes for non-invasive bioenergetic studies of whole cyanobacterial cells. – *Biochim. biophys. Acta* **1506**: 31-46, 2001. [Membrane energization, ΔpH .]
- Thiemann, B., Imhoff, J.F.: Occurrence and purification of the photoactive yellow protein of *Ectothiorhodospira halophila* (PYP) and of immunologically related proteins of *Rhodospirillum salexigens* and *Chromatium salexigens* and intracellular localization of PYP. – *Biochim. biophys. Acta* **1253**: 181-188, 1995.
- Thoms, S., Pahlow, M., Wolf-Gladrow, D.A.: Model of the carbon concentrating mechanism in chloroplasts of eucaryotic algae. – *J. theor. Biol.* **208**: 295-313, 2001.
- Tiburzy, J., Zimmermann, M., Berzborn, R.J.: Quantitative assay of photosynthetic ATP synthase subunit CF_0 by enzyme-linked immunosorbent assay (ELISA) using recombinant polypeptide for calibration. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 87-90. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Tietz, C., Jelezko, F., Gerken, U., Schuler, S., Schubert, A., Rogl, H., Wrachtrup, J.: Single molecule spectroscopy on the light-harvesting complex II of higher plants. – *Biophys. J.* **81**: 556-562, 2001.
- Tjus, S.E., Roobol-Boza, M., Pålsson, L.-O., Andersson, B.: Perfusion chromatography as a means for very quick isolation of the photosystem I core complex and light-harvesting I subcomplexes. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 103-106. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Tjus, S.E., Roobol-Boza, M., Pålsson, L.-O., Andersson, B.: Rapid isolation of Photosystem I chlorophyll-binding proteins by anion exchange perfusion chromatography. – *Photosynth. Res.* **45**: 41-49, 1995.
- Toda, Y., Murakami, S.: Cytochemical localization of photosystem I in relation to differentiation of the thylakoid membranes during greening of barley leaves. – *J. Electron Microsc.* **44**: 450-455, 1995.
- Todd, M.J., Gomez, J.: Enzyme kinetics determined using calorimetry: A general assay for enzyme activity? – *Anal. Biochem.* **296**: 179-187, 2001. [RuBPCO.]
- Tommos, C., Styring, S.: Y_z as a hydrogen-atom abstractor in the water-oxidizing chemistry of Photosystem II. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 651-654. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Tommos, C., Styring, S.: Y_z as a hydrogen-atom abstractor in the water-oxidizing chemistry of Photosystem II. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 475-478. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Torimura, M., Miki, A., Wadano, A., Kano, K., Ikeda, T.: Electrochemical investigation of cyanobacteria *Synechocystis* sp. PCC7942-catalyzed photoreduction of exogenous quinones and photoelectrochemical oxidation of water. – *J. electroanal. Chem.* **496**: 21-28, 2001. [Model of ETC.]
- Trevanion, S.J.: Photosynthetic carbohydrate metabolism in wheat (*Triticum aestivum* L.) leaves: optimization of methods for determination of fructose 2,6-bisphosphate. – *J. exp. Bot.* **51**: 1037-1045, 2000.
- Trinkunas, G., Holzwarth, A.R.: On the spatial distribution of chlorophyll spectral types in photosystem I. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 51-54. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Trissl, H.-W., Wulf, K.: Fast photovoltage measurements in photosynthesis. II. Experimental methods. – *Biospectroscopy* **1**: 71-82, 1995.
- Tsiotis, G., Haase, W., Engel, A., Michel, H.: Isolation and structural characterization of trimeric cyanobacterial photosystem I complex with the help of recombinant antibody fragments. – *Eur. J. Biochem.* **231**: 823-830, 1995.
- Valkunas, L., Liulio, V., Dekker, J.P., van Grondelle, R.: Description of energy migration and trapping in Photosystem I by a model with two distance scaling parameters. – *Photosynth. Res.* **43**: 149-154, 1995.
- van Amerongen, H., Struve, W.S.: Polarized optical spectroscopy of chromoproteins. – In: Abelson, J.N., Simon, M.I. (ed.): *Methods in Enzymology*. Vol. 246. Pp. 259-283. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995. [Pigment-protein complexes; review, 44 ref.]
- Varotto, C., Pesaresi, P., Maiwald, D., Kurth, J., Salamini, F., Leister, D.: Identification of photosynthetic mutants of *Arabidopsis* by automatic screening for altered effective quantum yield of photosystem 2. – *Photosynthetica* **38**: 497-504, 2000. [Automatic device used in screening.]
- Vasilev, S., Orth, P., Zouni, A., Owens, T.G., Bruce, D.: Excited-state dynamics in photosystem II: Insights from the x-ray crystal structure. – *Proc. nat. Acad. Sci. USA* **98**: 8602-8607, 2001.
- Vavilin, D.V., Tyystjärvi, E., Aro, E.M.: In search of a reversible stage of photoinhibition in a higher plant: No changes in the amount of functional Photosystem II accompany relaxation of variable fluorescence after exposure of lincomycin-treated *Cucurbita pepo* leaves to high light. – *Photosynth. Res.* **45**: 239-247, 1995. [Model.]
- Vredenberg, W., Bulychev, A., Dassen, H., Snel, J., van Voorthuysen, T.: A patch clamp method for determining single turnover charge separations in the chloroplast membrane. – *Biochim. biophys. Acta* **1230**: 77-80, 1995.
- Vredenberg, W., Bulychev, A., van Voorthuysen, T., Snel, J.: The electrical properties of the thylakoid membrane and its partitions ('brush borders') in relation to energy supply. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 209-215. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Scheme of the device.]
- Wadano, A., Kamata, Y., Iwaki, T., Nishikawa, K., Hitahashi, T.: Purification and characterization of phosphoribulokinase from the cyanobacterium *Synechococcus* PCC7942. – *Plant Cell Physiol.* **36**: 1381-1385, 1995.
- Waagemann, K., Soll, J.: Characterization and isolation of the chloroplast protein import machinery. – In: Galbraith, D.W., Bourque, D.P., Bohnert, H.J. (ed.): *Methods in Cell Biology*. Vol. 50. Pp. 255-267. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995.
- Wang, P., Royer, M., Houtz, R.L.: Affinity purification of ribulose-1,5-bisphosphate carboxylase/oxygenase large

BIBLIOGRAPHY

- subunit ⁶N-methyltransferase. – *Protein Express. Purif.* **6**: 528-536, 1995.
- Wasielewski, M.R.: Photogenerated, spin-correlated radical ion pairs in photosynthetic model systems. – *Spectrum* **8**(1): 8-12, 1995. [Review, 23 ref.]
- Weisbeck, P., Demel, R., van't Hof, R., de Kruiff, B., Pilon, M.: Functional domains of the ferredoxin transit sequence involved in chloroplast import: The role of specific regions in the recognition of envelope membrane lipids. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 731-736. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Welte, C., Nickel, R., Wild, A.: Three-dimensional crystallization of the light-harvesting complex from *Mantoniella squamata* (Prasinophyceae) requires an adequate purification procedure. – *Biochim. biophys. Acta* **1231**: 265-274, 1995.
- Werner, C., Ryel, R.J., Correia, O., Beyschlag, W.: Effects of photoinhibition on whole-plant carbon gain assessed with a photosynthesis model. – *Plant Cell Environ.* **24**: 27-40, 2001.
- Wiggli, M., Ghosh, R., Bachofen, R.: Use of the LabSpecTM VNIR-512 spectroradiometer for *in situ* spectroscopy of single colonies. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 537-540. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Wilhelmová, N.: Thylakoid fragmentation by detergents using leaf development. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 417-420. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Wollenberger, L., Weibull, C., Albertsson, P.-Å.: Further characterization of the chloroplast grana margins: the non-detergent preparation of granal Photosystem I cannot reduce ferredoxin in the absence of NADP⁺ reduction. – *Biochim. biophys. Acta* **1230**: 10-22, 1995.
- Wollman, F.-A., Kuras, R., Choquet, Y.: Epistatic effects in thylakoid protein synthesis: The example of cytochrome *f*. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. III. Pp. 737-742. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Wulf, K., Trissl, H.-W.: Fast photovoltage measurements in photosynthesis. I. Theory and data evaluation. – *Biospectroscopy* **1**: 55-69, 1995.
- Xu, Q., Chitnis, V.P., An, K., Chitnis, P.R.: Structural organization of photosystem I polypeptides. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. II. Pp. 87-90. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Yagishita, T., Sawayama, S., Tsukahara, K., Ogi, T.: Behavior of bioelectrocatalytic currents in electrolysis cells using immobilized *Synechocystis* sp. PCC6714 within poly-ion complex on glassy carbon electrodes. – *Electrochemistry* **68**: 878-881, 2000.
- Zahavy, E., Willner, I.: Application of eosin-modified reconstituted Co(II)-myoglobin as semisynthetic photo-enzyme for cyclic photosynthesis. – *J. amer. chem. Soc.* **117**: 10581-10582, 1995. [Artificial Ps systems.]
- Zhao, J., Zhu, J., Jiang, L.: Study on the energy transfer processes in phycobilisome from blue-green algae by the use of stochastic simulation approach. – *Biochim. biophys. Acta* **1229**: 39-48, 1995.
- Zolla, L., Bianchetti, M.: High-performance liquid chromatography coupled on-line with electrospray ionization mass spectrometry for the simultaneous separation and identification of the *Synechocystis* PCC 6803 phycobilisome proteins. – *J. Chromatogr. A* **912**: 269-279, 2001.
- Zolla, L., Timperio, A.M.: High-performance liquid chromatography-electrospray mass spectrometry for the simultaneous resolution and identification of intrinsic thylakoid membrane proteins. – *Proteins-Struct. Funct. Genet.* **41**: 398-406, 2000.

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

- Havir, E.A., Tausta, S.L., Peterson, R.B.: Purification and properties of violaxanthin de-epoxidase from spinach. – *Plant Sci.* **123**: 57-66, 1997.
- Hodgson, D.A., Wright, S.W., Davies, N.: Mass spectrometry and reverse phase HPLC techniques for the identification of degraded fossil pigments in lake sediments and their application in palaeolimnology. – *J. Paleolimnol.* **18**: 335-350, 1997.
- Holub, O., Seufferheld, M.J., Gohlke, C., Govindjee, Clegg, R.M.: Fluorescence lifetime imaging (FLI) in real-time – a new technique in photosynthesis research. – *Photosynthetica* **38**: 581-599, 2000.
- Hoshimiya, T.: Protoacoustic measurement of alga living in an environmental hydrosphere. – *Anal. Sci.* **17**: S523-S525, 2001. [Chl, Car, photoacoustic system set-up.]
- Huck, C.W., Popp, M., Scherz, H., Bonn, G.K.: Development and evaluation of a new method for the determination of the carotenoid content in selected vegetables by HPLC and HPLC-MS-MS. – *J. Chromatogr. Sci.* **38**: 441-449, 2000.
- Humphrey, G.F., Jeffrey, S.W.: Tests of accuracy of spectrophotometric equations for the simultaneous determination of chlorophylls *a*, *b*, *c*₁ and *c*₂. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 616-621. UNESCO Publishing, Paris 1997.
- Ioannides, I.M., Shedbalkar, V.P., Rebeiz, C.A.: Quantitative determination of 2-monovinyl protochlorophyll(ide) *b* by spectrofluorometry. – *Anal. Biochem.* **249**: 241-244, 1997. [Calculation equations.]
- Jarvis, A.P., Morgan, E.D.: Isolation of plant products by supercritical-fluid extraction. – *Phytochem. Anal.* **8**: 217-222, 1997. [Car; review, 72 ref.]
- Jeffrey, S.W.: Application of pigments methods to oceanography. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 127-166. UNESCO Publishing, Paris 1997. [Review, 162 ref.]
- Jeffrey, S.W.: Preparation of chlorophyll standards. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 207-238. UNESCO Publishing, Paris 1997. [Review, 52 ref.]

- Jeffrey, S.W.: Chlorophyll and carotenoid extinction coefficients. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 595-596. UNESCO Publishing, Paris 1997.
- Jeffrey, S.W., Mantoura, R.F.C.: Development of pigment methods for oceanography: SCOR-supported Working Groups and objectives. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 19-36. UNESCO Publishing, Paris 1997. [Review, 76 ref.]
- Jeffrey, S.W., Mantoura, R.F.C., Bjørnland, T.: Data for the identification of 47 key phytoplankton pigments. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 449-559. UNESCO Publishing, Paris 1997. [Review, 134 ref.]
- Jeffrey, S.W., Wright, S.W.: Qualitative and quantitative HPLC analysis of SCOR reference algal cultures. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 343-360. UNESCO Publishing, Paris 1997. [Review, 47 ref.]
- Jennings, R.C., Elli, G., Garlaschi, F.M., Santabarbara, S., Zucchelli, G.: Selective quenching of the fluorescence of core chlorophyll-protein complexes by photochemistry indicates that Photosystem II is partly diffusion limited. – *Photosynth. Res.* **66**: 225-233, 2000.
- Jensen, M., Siebke, K.: Fluorescence imaging of lichens in the macro scale. – *Symbiosis* **23**: 183-195, 1997.
- Kim, M.S., McMurtrey, J.E., Mulchi, C.L., Daughtry, C.S.T., Chappelle, E.W., Chen, Y.-R.: Steady-state multispectral fluorescence imaging system for plant leaves. – *Appl. Optics* **40**: 157-166, 2001.
- Klevanik, A.V.: Peremennaya fluorestsentsiya v pervichnykh protsessakh fotosinteza i kogerentnyy zakhvat singletnykh vzbuzhdeniy reaktivnykh tsentrami. [Variable fluorescence in the primary processes of photosynthesis and coherent trapping of excitation energy.] – *Biofizika* **41**: 313-319, 1996. [Model; in R, ab: E.]
- Kobayashi, M., Kurimura, Y., Sakamoto, Y., Tsuji, Y.: Selective extraction of astaxanthin and chlorophyll from the green alga *Haematococcus pluvialis*. – *Biotechnol. Techniques* **11**: 657-660, 1997.
- Konings, E.J.M., Roomans, H.H.S.: Evaluation and validation of an LC method for the analysis of carotenoids in vegetables and fruit. – *Food Chem.* **59**: 599-603, 1997.
- Konermann, L., Yruela, I., Holzwarth, A.R.: Pigment assignment in the absorption spectrum of the photosystem II reaction center by site-selection fluorescence spectroscopy. – *Biochemistry* **36**: 7498-7502, 1997.
- Kowalczyk, A., Zelent, B., Malak, H., Planner, A., Sanocka, S., Frackowiak, D.: Analysis of fluorescence decays of chlorophyll *a* and β -carotene in nematic liquid crystal. – *Spectroscopy Lett.* **29**: 367-378, 1996. [Model.]
- Küpper, H., Šetlík, I., Trtílek, M., Nedbal, L.: A microscope for two-dimensional measurements of *in vivo* chlorophyll fluorescence kinetics using pulsed measuring radiation, continuous actinic radiation, and saturating flashes. – *Photosynthetica* **38**: 553-570, 2000. [Fluorescence kinetic microscope.]
- Küpper, H., Spiller, M., Küpper, F.C.: Photometric method for the quantification of chlorophylls and their derivatives in complex mixtures: Fitting with Gauss-peak spectra. – *Anal. Biochem.* **286**: 247-256, 2000.
- Latowski, D., Burda, K., Strzałka, K.: A mathematical model describing kinetics of conversion of violaxanthin to zeaxanthin via intermediate antheraxanthin by the xanthophyll cycle enzyme violaxanthin de-epoxidase. – *J. theor. Biol.* **206**: 507-514, 2000.
- Lázár, D., Nauš, J., Matoušková, M., Flašarová, M.: Mathematical modeling of changes in chlorophyll fluorescence induction caused by herbicides. – *Pestic. Biochem. Physiol.* **57**: 200-210, 1997.
- Lee, H.S., Castle, W.S., Coates, G.A.: High-performance liquid chromatography for the characterization of carotenoids in the new sweet orange (Earlygold) grown in Florida, USA. – *J. Chromatogr. A* **913**: 371-377, 2001.
- Li, H.-B., Chen, F.: Preparative isolation and purification of astaxanthin from the microalga *Chlorococcum* sp. by high-speed counter-current chromatography. – *J. Chromatogr. A* **925**: 133-137, 2001.
- Li, M., Slaughter, D.C., Thompson, J.F.: Optical chlorophyll sensing system for banana ripening. – *Postharvest Biol. Technol.* **12**: 273-283, 1997.
- Lichtenthaler, H.K., Babani, F., Langsdorf, G., Buschmann, C.: Measurement of differences in red chlorophyll fluorescence and photosynthetic activity between sun and shade leaves by fluorescence imaging. – *Photosynthetica* **38**: 521-529, 2000. [Karlsruhe flash-lamp fluorescence imaging system.]
- Mantoura, R.F.C., Jeffrey, S.W., Llewellyn, C.A., Claustre, H., Morales, C.E.: Comparison between spectrophotometric, fluorometric and HPLC methods for chlorophyll analysis. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 361-380. UNESCO Publishing, Paris 1997. [Review, 41 ref.]
- Mantoura, R.F.C., Repeta, D.J.: Calibration methods for HPLC. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 407-428. UNESCO Publishing, Paris 1997.
- Mantoura, R.F.C., Wright, S.W., Jeffrey, S.W., Barlow, R.G., Cummings, D.E.: Filtration and storage of pigments from microalgae. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): *Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods*. Pp. 283-305. UNESCO Publishing, Paris 1997. [Review, 56 ref.]
- Markovic, D.Z., Carpentier, R.: Relationship between quenching of variable fluorescence and thermal dissipation in isolated thylakoid membranes: Similar terminology and mathematical treatments may be used. – *Biochem. Cell Biol.* **73**: 247-252, 1995.
- Markwell, J., Osterman, J.C., Mitchell, J.L.: Calibration of the Minolta SPAD-502 leaf chlorophyll meter. – *Photosynth. Res.* **46**: 467-472, 1995.
- Martinez, G.A., Civello, P.M., Chaves, A.R., Añón, M.C.: Partial characterization of chlorophyllase from strawberry fruit (*Fragaria ananassa*, Duch.). – *J. Food Biochem.* **18**:

BIBLIOGRAPHY

- 213-226, 1995.
- Martinson, T.A., Plumley, F.G.: One-step extraction and concentration of pigments and acyl lipids by *sec*-butanol from *in vitro* and *in vivo* samples. – *Anal. Biochem.* **228**: 123-130, 1995.
- Martinson, T.A., Plumley, F.G.: Isolation and characterization of plant and algal pigment-protein complexes. – In: Dashek, W.V. (ed.): *Methods in Plant Biochemistry and Molecular Biology*. Pp. 243-264. CRC Press, Boca Raton – New York 1997. [Review, 80 ref.]
- Mathies, R.A.: Biomolecular vibrational spectroscopy. – In: Abelson, J.N., Simon, M.I. (ed.): *Methods in Enzymology*. Vol. 246. Pp. 377-389. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995. [Bacteriorhodopsin.]
- Matthews, A.M., Duncan, A.G., Davison, R.G.: An assessment of validation techniques for estimating chlorophyll-*a* concentration from airborne multispectral imagery. – *Int. J. remote Sens.* **22**: 429-447, 2001. [Comparison of methods.]
- Mayer, P., Cuhel, R., Nyholm, N.: A simple *in vitro* fluorescence method for biomass measurements in algal growth inhibition tests. – *Water Res.* **31**: 2525-2531, 1997.
- Meyer, P., Riesen, R., Pfander, H.: Example 10: Carotenoid glycosides and glycosyl esters. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): *Carotenoids*. Vol. 1A: Isolation and Analysis. Pp. 277-282. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [7 ref.]
- Mínguez-Mosquera, M., Gandul-Rojas, B., Garrido-Fernández, J.: Preparation of Cu(II) complexes of oxidized chlorophylls and their determination by thin-layer and high-performance liquid chromatography. – *J. Chromatogr. A* **731**: 261-271, 1996.
- Misra, A.N., Srivastava, A., Strasser, R.J.: Utilization of fast chlorophyll *a* fluorescence technique in assessing the salt/ion sensitivity of mung bean and Brassica seedlings. – *J. Plant Physiol.* **158**: 1173-1181, 2001. [Models.]
- Mo, F.: X-ray crystallographic studies. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): *Carotenoids*. Vol. 1B: Spectroscopy. Pp. 321-342. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car; review, 55 ref.]
- Moldaenke, C., Vanselow, K.H., Hansen, U.-P.: The 1-Hz fluorometer: a new approach to fast and sensitive long-term studies of active chlorophyll and environmental influences. – *Helgolander Meeresunters.* **49**: 785-796, 1995.
- 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.
- Murata, S., Furukawa, H., Kuroda, K.: Effective inclusion of chlorophyllous pigments into mesoporous silica modified with α,ω -diols. – *Chem. Mater.* **13**: 2722-2729, 2001.
- Mysliwa-Kurdziel, B., Franck, F., Chahdi, M.A.O., Strzałka, K.: Changes in endothermic transitions associated with light-induced chlorophyllide formation, as investigated by differential scanning calorimetry. – *Physiol. Plant.* **107**: 230-239, 1999.
- Nagarkar, S., Williams, G.A.: Comparative techniques to quantify cyanobacteria dominated epilithic biofilms on tropical rocky shores. – *Mar. Ecol. Progr. Ser.* **154**: 281-291, 1997. [Chl extraction techniques.]
- Nakamura, A., Tanaka, S., Watanabe, T.: Normal-phase HPLC separation of possible biosynthetic intermediates of pheophytin *a* and chlorophyll *a*'. – *Anal. Sci.* **17**: 509-513, 2001.
- Nakamura, A., Watanabe, T.: Separation and determination of minor photosynthetic pigments by reversed-phase HPLC with minimal alteration of chlorophylls. – *Anal. Sci.* **17**: 503-508, 2001.
- Nedbal, L., Soukupová, J., Kaftan, D., Whitmarsh, J., Trtílek, M.: Kinetic imaging of chlorophyll fluorescence using modulated light. – *Photosynth. Res.* **66**: 3-12, 2001.
- Okamura, E., Hasegawa, T., Umemura, J.: Quantitative analysis of molecular orientation in chlorophyll *a* Langmuir monolayer: A polarized visible reflection spectroscopic study. – *Biophys. J.* **69**: 1142-1147, 1995. [Set-up for measuring polarized visible reflection spectra.]
- Osváth, S., Laczkó, G., Sebban, P., Maróti, P.: Induction of fluorescence in isolated reaction centers of *Rhodobacter sphaeroides*. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 795-798. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Ounis, A., Evain, S., Flexas, J., Tosti, S., Moya, I.: Adaptation of a PAM-fluorometer for remote sensing of chlorophyll fluorescence. – *Photosynth. Res.* **68**: 113-120, 2001.
- Ouzounidou, G., Moustakas, M., Lannoye, R.: Chlorophyll fluorescence and photoacoustic characteristics in relationship to changes in chlorophyll and Ca^{2+} content of a Cu-tolerant *Silene compacta* ecotype under Cu treatment. – *Physiol. Plant.* **93**: 551-557, 1995.
- Oxborough, K., Baker, N.R.: An instrument capable of imaging chlorophyll *a* fluorescence from intact leaves at very low irradiance and at cellular and subcellular levels of organization. – *Plant Cell Environ.* **20**: 1473-1483, 1997.
- Oxborough, K., Baker, N.R.: Resolving chlorophyll *a* fluorescence images of photosynthetic efficiency into photochemical and nonphotochemical components – calculation of qP and F_v'/F_m' without measuring F_o' . – *Photosynth. Res.* **54**: 135-142, 1997.
- Painter, T.H., Duval, B., Thomas, W.H., Mendez, M., Heintzelman, S., Dozier, J.: Detection and quantification of snow algae with an airborne imaging spectrometer. – *Appl. environ. Microbiol.* **67**: 5267-5272, 2001.
- Paliwal, K., Karunaichamy, K.S.T.K.: *In-situ* estimation of leaf chlorophyll by light transmittance in vegetable crops. – *Indian J. agr. Sci.* **65**: 361-362, 1995.
- Peñuelas, J., Baret, F., Filella, I.: Semi-empirical indices to assess carotenoids/chlorophyll *a* ratio from spectral reflectance. – *Photosynthetica* **31**: 221-230, 1995.
- Pfander, H.: Chromatography: Part I. General aspects. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): *Carotenoids*. Vol. 1A: Isolation and Analysis. Pp. 109-116. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car; review, 5 ref.]
- Pfander, H., Niggli, U.: Chromatography: Part V. Supercritical-fluid chromatography. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): *Carotenoids*. Vol. 1A: Isolation and Analysis. Pp. 191-198. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car; review, 14 ref.]

- Pfander, H., Riesen, R.: Chromatography: Part IV. High-performance liquid chromatography. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): Carotenoids. Vol. 1A: Isolation and Analysis. Pp. 145-190. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car; review, 108 ref.]
- Polle, J.E.W., Niyogi, K.K., Melis, A.: Absence of lutein, violaxanthin and neoxanthin affects the functional chlorophyll antenna size of photosystem-II but not that of photosystem-I in the green alga *Chlamydomonas reinhardtii*. – *Plant Cell Physiol.* **42**: 482-491, 2001. [Model.]
- Pospišil, P., Dau, H.: Chlorophyll fluorescence transients of Photosystem II membrane particles as a tool for studying photosynthetic oxygen evolution. – *Photosynth. Res.* **65**: 41-52, 2000.
- Rascher, U., Liebig, M., Lüttge, U.: Evaluation of instant light-response curves of chlorophyll fluorescence parameters obtained with a portable chlorophyll fluorometer on site in the field. – *Plant Cell Environ.* **23**: 1397-1405, 2000.
- Ritz, T., Damjanović, A., Schulten, K., Zhang, J.-P., Koyama, Y.: Efficient light harvesting through carotenoids. – *Photosynth. Res.* **66**: 125-144, 2000. [Model.]
- Rodríguez, F., Zapata, M., Garrido, J.L.: High-performance liquid chromatographic separation of chlorophyll *c* forms from marine phytoplankton on octylsilica bonded phases. – *Chromatographia* **48**: 677-680, 1998.
- Rodríguez, I.R., Miller, G.L.: Using a chlorophyll meter to determine the chlorophyll concentration, nitrogen concentration, and visual quality of St. Augustinegrass. – *HortScience* **35**: 751-754, 2000.
- 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.
- Roy, S., Reddy, K.P.J.: Modelling of light modulation processes in D85N bacteriorhodopsin. – *Curr. Sci.* **78**: 184-188, 2000.
- Samdur, M.Y., Singh, A.L., Mathur, R.K., Manivel, P., Chikani, B.M., Gor, H.K., Khan, M.A.: Field evaluation of chlorophyll meter for screening groundnut (*Arachis hypogaea* L.) genotypes tolerant to iron-deficiency chlorosis. – *Curr. Sci.* **79**: 211-214, 2000.
- Schiedt, K.: Chromatography: Part III. Thin-layer chromatography. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): Carotenoids. Vol. 1A: Isolation and Analysis. Pp. 131-144. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car; 17 ref.]
- Schiedt, K., Liaaen-Jensen, S.: Isolation and analysis. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): Carotenoids. Vol. 1A: Isolation and Analysis. Pp. 81-108. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car; 39 ref.]
- Schierle, J., J., Härdi, W., Fuccin, N., Bühler, I., Schüep, W.: Example 8: Geometrical isomers of β,β -carotene. – A rapid routine method for quantitative determination. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): Carotenoids. Vol. 1A: Isolation and Analysis. Pp. 265-272. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [0 ref.]
- Schlüter, L., Möhlenberg, F., Havskum, H., Larsen, S.: The use of phytoplankton pigments for identifying and quantifying phytoplankton groups in coastal areas: testing the influence of light and nutrients on pigment/chlorophyll *a* ratios. – *Mar. Ecol. Progr. Ser.* **192**: 49-63, 2000.
- Schmid, H., Stich, H.B.: HPLC-analysis of algal pigments: comparison of columns, column properties and eluents. – *J. appl. Phycol.* **7**: 487-494, 1995.
- Schoefs, B., Bertrand, M., Funk, C.: Photoactive protochlorophyllide regeneration in cotyledons and leaves from higher plants. – *Photochem. Photobiol.* **72**: 660-668, 2001. [Model.]
- Seely, G.R.: Reversible photochemistry in a chlorophyll model system. – *Photosynth. Res.* **45**: 203-217, 1995.
- Serôdio, J., Catarino, F.: Modelling the primary productivity of intertidal microphytobenthos: time scales of variability and effects of migratory rhythms. – *Mar. Ecol. Progr. Ser.* **192**: 13-30, 2000. [Set-up for measuring Chl fluorescence.]
- Serôdio, J., Da Silva, J.M., Catarino, F.: Use of *in vivo* chlorophyll *a* fluorescence to quantify short-term variations in the productive biomass of intertidal microphytobenthos. – *Mar. Ecol. Progr. Ser.* **218**: 45-61, 2001. [Model.]
- Seydack, M., Redlin, H., Voigt, J.: On the dependence of LHC II fluorescence lifetimes on temperature. – In: Mathis, P. (ed.): Photosynthesis: from Light to Biosphere. Vol. I. Pp. 283-286. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Device for measuring fluorescence decay.]
- Shioi, Y., Watanabe, K., Takamiya, K., Garrido, J.L., Zapata, M.: Separation of mono- and divinyl chlorophyll species by high-performance liquid chromatography using an octadecyl polyvinyl alcohol polymer column. – *Anal. Biochem.* **231**: 225-229, 1995.
- Siebbe, K., Weis, E.: Imaging of chlorophyll-*a*-fluorescence in leaves: Topography of photosynthetic oscillations in leaves of *Glechoma hederacea*. – *Photosynth. Res.* **45**: 225-237, 1995.
- Soja, G., Soja, A.-M.: Wheat as an ozone sensitive crop. – *Acta phytopathol. entomol. hung.* **30**: 59-70, 1995. [Chl fluorescence; review, 38 ref.]
- Srivastava, A., Strasser, R.J., Govindjee: Polyphasic rise of chlorophyll *a* fluorescence in herbicide-resistant D1 mutants *Chlamydomonas reinhardtii*. – *Photosynth. Res.* **43**: 131-141, 1995. [Model.]
- Sthapit, B.R., Witcombe, J.R., Wilson, J.M.: Methods of selection for chilling tolerance in Nepalense rice by chlorophyll fluorescence analysis. – *Crop Sci.* **35**: 90-94, 1995.
- Stirbet, A.D., Govindjee, Strasser, B.J., Strasser, R.J.: Numerical simulation of chlorophyll *a* fluorescence induction in plants. – In: Mathis, P. (ed.): Photosynthesis: from Light to Biosphere. Vol. II. Pp. 919-922. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Stirbet, A.D., Rosenau, P., Ströder, A.C., Strasser, R.J.: Parameter optimisation of fast chlorophyll fluorescence induction model. – *Mathematics Computers Simulation* **56**: 443-450, 2001.
- Stirbet, A.D., Strasser, R.J.: Numerical simulation of the fluorescence induction in plants. – *Arch. Sci. Genève* **48**: 41-59, 1995.
- Stirbet, A.D., Strasser, R.J.: Numerical simulation of the *in vivo* fluorescence in plants. – *Mathematics Computers Simulation* **42**: 245-253, 1996.
- Strasser, B.J., Strasser, R.J.: Measuring fast fluorescence transients to address environmental questions: The JIP-test. –

BIBLIOGRAPHY

- In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 977-980. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Subhash, N., Mazzinghi, P., Agati, G., Fusi, F., Lercari, B.: Analysis of laser-induced fluorescence line shape of intact leaves: Application to UV-stress detection. – *Photochem. Photobiol.* **62**: 711-718, 1995. [Arrangement for *in vivo* laser-induced fluorescence spectral measurements.]
- Svensson, B., van Kan, P.J.M.: A proposal for the structure of the P₆₈₀ pigments in photosystem II. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 425-430. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Takaishi, S.: Characterization of carotenes in a combination of a C₁₈ HPLC column with isocratic elution and absorption spectra with a photodiode-array detector. – *Photosynth. Res.* **65**: 93-99, 2000.
- Thieberger, Y., Kizner, Z., Achituv, Y., Dubinsky, Z.: A novel, nondestructive bioassay for assessing areal chlorophyll *a* in hermatypic cnidarians. – *Limnol. Oceanogr.* **40**: 1166-1173, 1995.
- Tomek, P., Lázár, D., Ilík, P., Nauš, J.: On the intermediate steps between the O and P steps in chlorophyll *a* fluorescence rise measured at different intensities of exciting light. – *Aust. J. Plant Physiol.* **28**: 1151-1160, 2001. [Model.]
- Townley, H.E., Sessions, R.B., Clarke, A.R., Dafforn, T.R., Griffiths, W.T.: Protochlorophyllide oxidoreductase: A homology model examined by site-directed mutagenesis. – *Proteins: Struct. Funct. Genet.* **44**: 329-335, 2001.
- Tretiak, S., Middleton, C., Chernyak, V., Mukamel, S.: Bacteriochlorophyll and carotenoid excitonic couplings in the LH2 system of purple bacteria. – *J. phys. Chem. B* **104**: 9540-9553, 2000.
- Tretiak, S., Middleton, C., Chernyak, V., Mukamel, S.: Exciton Hamiltonian for the bacteriochlorophyll system in the LH2 antenna complex of purple bacteria. – *J. phys. Chem. B* **104**: 4519-4528, 2000.
- Tretiak, S., Saxena, A., Martin, R.L., Bishop, A.R.: CEO/semiempirical calculations of UV-visible spectra in conjugated molecules. – *Chem. Phys. Lett.* **331**: 561-568, 2000. [Car.]
- Tsimilli-Michael, M., Krüger, G.H.J., Strasser, R.J.: Suboptimality as driving force for adaptation: A study about correlation of excitation light intensity and the dynamics of fluorescence emission in plants. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 981-984. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Tugulea, L., Antohe, S.: Chlorophyll *a*/organic semiconductor junction – possible model for photoinduced charge separation in photosynthetic reaction centers. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. I. Pp. 447-450. Kluwer Academic Publishers, Dordrecht – Boston – London 1995. [Model.]
- Ustin, S.L., Jacquemoud, S., Govaerts, Y.: Simulation of photon transport in a three-dimensional leaf: implications for photosynthesis. – *Plant Cell Environ.* **24**: 1095-1103, 2001.
- van Breemen, R.B.: Electrospray liquid chromatography-mass spectrometry of carotenoids. – *Anal. Chem.* **67**: 2004-2009, 1995.
- van Breemen, R.B.: Innovations in carotenoid analysis using LC/MS. – *Anal. Chem.* **68**: 299A-304A, 1996. [Review, 14 ref.]
- van Breemen, R.B., Huang, C.-R., Tan, Y., Sander, L.C., Schilling, A.B.: Liquid chromatography/mass spectrometry of carotenoids using atmospheric pressure chemical ionization. – *J. Mass Spectrometry* **31**: 975-981, 1996.
- van Lenning, K., Garrido, J.L., Aristegui, J., Zapata, M.: Temperature-programmed high performance liquid chromatography separation of mono- and divinyl chlorophyll forms from marine phytoplankton. – *Chromatographia* **41**: 539-543, 1995.
- van Rossum, B.-J., Boender, G.J., Mulder, F.M., Raap, J., Balaban, T.S., Holzwarth, A., Schaffner, K., Prytulla, S., Oschkinat, H., de Groot, H.J.M.: Multidimensional CP-MAS ¹³C NMR of uniformly enriched chlorophyll. – *Spectrochim. Acta A* **54**: 1167-1176, 1998.
- Vermaas, W.F.J.: Functional effects of structural changes in photosystem II as measured by chlorophyll fluorescence kinetics. – In: Galbraith, D.W., Bourque, D.P., Bohnert, H.J. (ed.): *Methods in Cell Biology*. Vol. 50. Pp. 15-30. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1995.
- Viiil, J.: Carboxylation and oxygenation of ribulose-1,5-bisphosphate (RUBP): A model on the leaf level of the partial reactions. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 215-218. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Viskari, P.J., Kinkade, C.S., Colyer, C.L.: Determination of phycobiliproteins by capillary electrophoresis with laser-induced fluorescence detection. – *Electrophoresis* **22**: 2327-2335, 2001.
- Vodacek, A., Hoge, F.E., Swift, R.N., Yungel, J.K., Peltzer, E.T., Blough, N.V.: The use of *in situ* and airborne fluorescence measurements to determine UV absorption coefficients and DOC concentrations in surface waters. – *Limnol. Oceanogr.* **40**: 411-415, 1995.
- Vogelmann, T.G., Han, T.: Measurement of gradients of absorbed light in spinach leaves from chlorophyll fluorescence profiles. – *Plant Cell Environ.* **23**: 1303-1311, 1995. [Leaf holder.]
- Volkov, A.G., Gugeshashvili, M.I., Zelent, B., Côte, D., Munger, G., Tessier, A., Blanchet, P.-F., Leblanc, R.M.: Light energy conversion with chlorophyll *a* and pheophytin *a* monolayers at the optically transparent SnO₂ electrode: artificial photosynthesis. – *Bioelectrochem. Bioenerg.* **38**: 333-342, 1995.
- Watanabe, N., Che, F.-S., Terashima, K., Takayama, S., Yoshida, S., Isogai, A.: Purification and properties of protoporphyrinogen oxidase from spinach chloroplasts. – *Plant Cell Physiol.* **41**: 889-892, 2000.
- Weedon, B.C.L., Moss, G.P.: Structure and nomenclature. – In: Britton, G., Liaaen-Jensen, S., Pfander, H. (ed.): *Carotenoids*. Vol. 1A: Isolation and Analysis. Pp. 27-70. Birkhäuser Verlag, Basel – Boston – Berlin 1995. [Car, 16 ref.]
- Yang, C.-M., Hsu, J.-C., Lu, Y.-K., Yin, M.-H.: Pigment solubilization of the chloroplast thylakoid membranes by a surfactant. – *Bot. Bull. Acad. sin.* **37**: 121-126, 1996.

Zhao, J., Zhu, J., Jiang, L.: Study on the energy transfer processes in phycobilisomes from blue-green algae by the use stochastic simulation approach. – *Biochim. biophys. Acta* **1229**: 39-48, 1995. [Model.]

Zhou, F., van Berkel, G.J.: Electrochemistry combined on-line with electrospray mass spectrometry. – *Anal. Chem.* **67**: 3643-3649, 1995. [Car, electrochemical flow cells.]

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

Aldesuquy, H.S.: Effect of indol-3-yl acetic acid on photosynthetic characteristics of wheat flag leaf during grain filling. – *Photosynthetica* **38**: 135-141, 2000. [¹⁴C fixation vessel.]

Augé, R.M., Green, C.D., Stodola, A.J.W., Saxton, A.M., Olinick, J.B., Evans, R.M.: Correlations of stomatal conductance with hydraulic and chemical factors in several deciduous tree species in a natural habitat. – *New Phytol.* **145**: 483-500, 2000. [Model.]

Badeck, F.-W., Liozon, R., Gently, B., Meyer, S., Saugier, B.: On the significance of internal resistance in tree leaves for gas exchange under elevated CO₂. – In: Mohren, G.M.J., Kramer, K., Sabaté, S. (ed.): *Impacts of Global Change on Tree Physiology and Forest Ecosystems*. Pp. 35-39. Kluwer Academic Publishers, Dordrecht – Boston – London 1997. [Model.]

Barbour, M.M., Farquhar, G.D.: Relative humidity- and ABA-induced variation in carbon and oxygen isotope ratios of cotton leaves. – *Plant Cell Environ.* **23**: 473-485, 2000. [Model.]

Barja, P.R., Mansanares, A.M., Da Silva, E.C., Magalhães, A.C.N., Alves, P.L.C.A.: Photosynthesis in eucalyptus studied by the open photoacoustic technique. Effects of irradiance and temperature. – *Acoustical Phys.* **47**: 16-21, 2001.

Best, E.P.H., Buzzelli, C.P., Bartell, S.M., Wetzel, R.L., Boyd, W.A., Doyle, R.D., Campbell, K.R.: Modeling submersed macrophyte growth in relation to underwater light climate: modeling approaches and application potential. – *Hydrobiologia* **444**: 43-70, 2001.

Bosc, A.: EMILION, a tree functional-structural model: Presentation and first application to the analysis of branch carbon balance. – *Ann. Forest Sci.* **57**: 555-569, 2000.

Bruchou, C., Génard, M.: A space-time model of carbon translocation along a shoot bearing fruits. – *Ann. Bot.* **84**: 565-576, 1999.

Bunce, J.A.: Responses of stomatal conductance to light, humidity and temperature in winter wheat and barley grown at three concentrations of carbon dioxide in the field. – *Glob. Change Biol.* **6**: 371-382, 2000. [Model.]

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

Chernyad'ev, I.I.: Fotosintez rastenii v usloviyakh vodnogo stressa i protektornoe vliyanie tsitokininov. [Plant photosynthesis under conditions of water stress and the protective effect of cytokinins.] – *Priklad. Biokhim. Mikrobiol.* **33**: 5-17, 1997. [In R, ab: E.]

Constable, J.V.H., Taylor, G.E., Jr.: Modeling the effects of elevated tropospheric O₃ on two varieties of *Pinus ponderosa*. – *Can. J. Forest Res.* **27**: 527-537, 1997.

Donahue, R.A., Poulson, M.E., Edwards, G.E.: A method for measuring whole plant photosynthesis in *Arabidopsis thaliana*. – *Photosynth. Res.* **52**: 263-269, 1997.

Eschenbach, C.: The effect of light acclimation of single leaves on whole tree growth and competition – an application of the tree growth model ALMIS. – *Ann. Forest Sci.* **57**: 599-609, 2000.

Ewert, F., Porter, J.R.: Ozone effects on wheat in relation to CO₂: modelling short-term and long-term responses of leaf photosynthesis and leaf duration. – *Glob. Change Biol.* **6**: 735-750, 2000.

Ferreira, R.A., Pachepsky, L.B., Collino, D., Acock, B.: Modeling peanut leaf gas exchange for the calibration of crop models for different cultivars. – *Ecol. Model.* **131**: 285-298, 2000.

Field, C.B., Chapin, F.S., III, Chiariello, N.R., Holland, E.A., Mooney, H.A.: The Jasper Ridge CO₂ experiment: Design and motivation. – In: Koch, G.W., Mooney, H.A. (ed.): *Carbon Dioxide and Terrestrial Ecosystems*. Pp. 121-145.

Finkel, Z.V., Irwin, A.J.: Modeling size-dependent photosynthesis: Light absorption and the allometric rule. – *J. theor. Biol.* **204**: 361-369, 2000.

Fisher, D.B., Cash-Clark, C.E.: Gradients in water potential and turgor pressure along the translocation pathway during grain filling in normally watered and water-stressed wheat plants. – *Plant Physiol.* **123**: 139-147, 2000. [Photosynthates.]

Fridlyand, L.E.: Models of CO₂ concentrating mechanisms in microalgae taking into account cell and chloroplast structure. – *BioSystems* **44**: 41-57, 1997.

Ghannoun, O., Caemmerer, S. von, Ziska, L.H., Conroy, J.P.: The growth response of C₄ plants to rising atmospheric CO₂ partial pressure: a reassessment. – *Plant Cell Environ.* **23**: 931-942, 2000. [Model.]

Gillon, J.S., Griffiths, H.: The influence of (photo)respiration on carbon isotope discrimination in plants. – *Plant Cell Environ.* **20**: 1217-1230, 1997. [Model.]

Gillon, J.S., Yakir, D.: Internal conductance to CO₂ diffusion and C¹⁸O discrimination in C₃ leaves. – *Plant Physiol.* **123**: 201-213, 2000. [Model.]

Godin, C., Costes, E., Sinoquet, H.: A method for describing plant architecture which integrates topology and geometry. – *Ann. Bot.* **84**: 343-357, 1999.

Goulden, M.L., Crill, P.M.: Automated measurements of CO₂ exchange at the moss surface of a black spruce forest. – *Tree Physiol.* **17**: 537-542, 1997. [Closed system with IRGA.]

Granier, A., Loustau, D., Breda, N.: A generic model of forest canopy conductance dependent on climate, soil water availability and leaf area index. – *Ann. Forest Sci.* **57**: 755-765, 2000.

BIBLIOGRAPHY

- Haefner, J.W., Buckley, T.N., Mott, K.A.: A spatially explicit model of patchy stomatal responses to humidity. – *Plant Cell Environ.* **20**: 1087-1097, 1997.
- Henriksen, G.H., Assmann, S.M.: Laser-assisted patch clamping: a methodology. – *Pflügers Arch.-Eur. J. Physiol.* **433**: 832-841, 1997. [Laser microsurgery for stomata analysis.]
- Ingestad, T.: A shift of paradigm is needed in plant science. – *Physiol. Plant.* **101**: 446-450, 1997. [Ps, opinion; review, 48 ref.]
- James, C.M., Barrett, J.A., Russell, S.J., Gibby, M.: A rapid PCR based method to establish the potential for paternal inheritance of chloroplasts in *Pelargonium*. – *Plant mol. Biol.* **19**: 163-167, 2001.
- Kastner-Maresch, A., Sonntag, M., Fleck, S.: The direct response of photosynthesis to climate change. – In: Mohren, G.M.J., Kramer, K., Sabaté, S. (ed.): *Impacts of Global Change on Tree Physiology and Forest Ecosystems*. Pp. 27-33. Kluwer Academic Publishers, Dordrecht – Boston – London 1997.
- Katul, G.G., Ellsworth, D.S., Lai, C.-T.: Modelling assimilation and intercellular CO₂ from measured conductance: a synthesis of approaches. – *Plant Cell Environ.* **23**: 1313-1328, 2000.
- Kellomäki, S., Wang, K.-Y., Lemettinen, M.: Controlled environment chambers for investigating tree response to elevated CO₂ and temperature under boreal conditions. – *Photosynthetica* **38**: 69-81, 2000.
- Kimball, B.A., Pinter, P.J., Jr., Wall, G.W., Garcia, R.L., LaMorte, R.L., Jak, P.M.C., Frumau, K.F.A., Vughts, H.F.: Comparisons of responses of vegetation to elevated carbon dioxide in free-air and open-top chamber facilities. – In: Allen, L.H., Jr., Kirkham, M.B., Olszyk, D.M., Whitman, C.E. (ed.): *Advances in Carbon Dioxide Effects Research*. (ASA Special Publication 61.) Pp. 113-130. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison 1997. [Review, 50 ref.]
- Kitano, M., Araki, T., Hamakoga, M., Eguchi, H.: On-line measurements of CO₂ and H₂O gas fluxes, sap flux and expansive growth in an intact tomato fruit. – *Biotronics* **26**: 85-94, 1997.
- Kläring, H.-P.: Effects of non-destructive mechanical measurements on plant growth: a study with sweet pepper (*Capsicum annuum* L.). – *Scientia Hort.* **81**: 369-375, 1999.
- Klingeman, W.E., Buntin, G.D., van Iersel, M.W., Braman, S.K.: Whole-plant gas exchange, not individual-leaf measurements, accurately assesses azalea response to insecticides. – *Crop Protect.* **19**: 407-415, 2000. [Gas exchange system with assimilation chamber.]
- Köhler-Rink, S., Köhl, M.: Microsensor studies of photosynthesis and respiration in larger symbiotic foraminifera. I. The physicochemical microenvironment of *Marginopora vertebralis*, *Amphistegina lobifera* and *Amphisorus hemprichii*. – *Mar. Biol.* **137**: 473-486, 2000. [Experimental flow chamber.]
- Konrad, W., Roth Nebelsick, A., Kerp, H., Hass, H.: Transpiration and assimilation of early Devonian land plants with axially symmetric telomes—Simulations on the tissue level. – *J. theor. Biol.* **206**: 91-107, 2000.
- Korn, S., Tausch, M.W.: A laboratory simulation for coupled cycles of photosynthesis and respiration. – *J. chem. Educ.* **78**: 1238-1240, 2001.
- Laisk, A., Edwards, G.E.: A mathematical model of C₄ photosynthesis: The mechanism of concentrating CO₂ in NADP-malic enzyme type species. – *Photosynth. Res.* **66**: 199-224, 2000.
- Law, B.E., Goldstein, A.H., Anthoni, P.M., Unsworth, M.H., Panek, J.A., Bauer, M.R., Francheboud, J.M., Hultman, N.: Carbon dioxide and water vapor exchange by young and old ponderosa pine ecosystems during a dry summer. – *Tree Physiol.* **21**: 299-308, 2001.
- Law, B.E., Williams, M., Anthoni, P.M., Baldocchi, D.D., Unsworth, M.H.: Measuring and modelling seasonal variation of carbon dioxide and water vapour exchange of a *Pinus ponderosa* forest subject to soil water deficit. – *Glob. Change Biol.* **6**: 613-630, 2000.
- Maleszewski, S., Niemyjska, E., Kozłowska-Szerenos, B.: Carbon dioxide assimilation, transpiration, and leaf conductance of bean (*Phaseolus vulgaris* L.) under blue and red radiation. – *Photosynthetica* **39**: 233-237, 2001. [Open system with CO₂/H₂O analyser.]
- Marek, M.V., Kalina, J., Matoušková, M.: Response of photosynthetic carbon assimilation of Norway spruce exposed to long-term elevation of CO₂ concentration. – *Photosynthetica* **31**: 209-220, 1995. [Model.]
- Marshall, H.L., Geider, R.J., Flynn, K.J.: A mechanistic model of photoinhibition. – *New Phytol.* **145**: 347-359, 2000.
- Martin, M.J., Farage, P.K., Humphries, S.W., Long, S.P.: Can the stomatal changes caused by acute ozone exposure be predicted by changes occurring in the mesophyll? A simplification for models of vegetation response to the global increase in tropospheric elevated ozone episodes. – *Aust. J. Plant Physiol.* **27**: 211-219, 2000.
- Martin, M.J., Stirling, C.M., Humphries, S.W., Long, S.P.: A process-based model to predict the effects of climatic change on leaf isoprene emission rates. – *Ecol. Model.* **131**: 161-174, 2000. [Ps.]
- Massunaga, M.S. de O., Gatts, C.E.N., Gomes, A.G., Vargas, H.: A simple model for the dynamics of photosynthesis. – *Anal. Sci.* **17**: s29-s30, 2001.
- 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.
- Méthy, M.: Analysis of photosynthetic activity at the leaf and canopy levels from reflectance measurements: a case study. – *Photosynthetica* **38**: 505-512, 2000.
- Midgley, G.F., Veste, M., Willert, D.J. von, Davis, G.W., Steinberg, M., Powrie, L.W.: Comparative field performance of three different gas exchange systems. – *Bothalia* **27**: 83-89, 1997.
- Mikkelsen, T.N., Ro-Poulsen, H.: Long term *in situ* measurements of gas exchange in a Norway spruce canopy at ambient and elevated ozone levels using a light weight chamber system – System designs and first results. – *Water Air Soil Pollut.* **85**: 1413-1418, 1995.
- Mortensen, L., Engvild, K.C.: Effects of ozone on ¹⁴C translocation velocity and growth of spring wheat (*Triticum*

- aestivum* L.) exposed in open-top chambers. – Environ. Pollut. **87**: 135-140, 1995. [Open-top chamber with lysimeter.]
- Naumburg, E., Ellsworth, D.S., Katul, G.G.: Modeling dynamic understory photosynthesis of contrasting species in ambient and elevated carbon dioxide. – Oecologia **126**: 487-499, 2001.
- Nikolov, N.T., Massman, W.J., Schoettle, A.W.: Coupling biochemical and biophysical processes at the leaf level: An equilibrium photosynthesis model for leaves of C₃ plants. – Ecol. Model. **80**: 205-235, 1995.
- Nouchi, I., Ito, O., Harazono, Y., Kouchi, H.: Acceleration of ¹³C-labelled photosynthate partitioning from leaves to panicles in rice plants exposed to chronic ozone at the reproductive stage. – Environ. Pollut. **88**: 253-260, 1995. [¹³CO₂ assimilation system.]
- Nouchi, I., Kobayashi, K.: Effects of enhanced ultraviolet-B radiation with a modulated lamp control system on growth of 17 rice cultivars in the field. – J. agr. Meteorol. **51**: 11-20, 1995. [Continuous proportional control system for supplemental UV-B irradiation in the field.]
- Nygren, P.: Leaf CO₂ exchange of *Erythrina poeppigiana* (Leguminosae: Phaseolae) in humid tropical field conditions. – Tree Physiol. **15**: 71-83, 1995. [Model of leaf Ps.]
- Olioso, A.: Comparison of empirical leaf photosynthesis and stomatal conductance models. – In: Mathis, P. (ed.): Photosynthesis: from Light to Biosphere. Vol. V. Pp. 841-844. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- 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., Haskett, J.D., Acock, B.: A two-dimensional model of leaf gas exchange with special reference to leaf anatomy. – J. Biogeogr. **22**: 209-214, 1995.
- Parresol, B.R., Thomas, C.E.: A simultaneous density-integral system for estimating stem profile and biomass: slash pine and willow oak. – Can. J. Forest Res. **26**: 773-781, 1996. [Model.]
- Parsons, R., Weyers, J.D.B., Lawson, T., Godber, I.M.: Rapid and straightforward estimates of photosynthetic characteristics using a portable gas exchange system. – Photosynthetica **34**: 265-279, 1997.
- 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.]
- 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.]
- Polle, A.: Protection from oxidative stress in trees as affected by elevated CO₂ and environmental stress. – In: Koch, G.W., Mooney, H.A. (ed.): Carbon Dioxide and Terrestrial Ecosystems. Pp. 299-315. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Chl, stomatal conductance; review, 80 ref.]
- Pouderoux, S., Deleuze, C., Dhôte, J.-F.: Analyse du rendement des houppiers dans un essai d'éclaircie de hêtre grâce à un modèle à base écophysologique. – Ann. Forest Sci. **58**: 261-275, 2001.
- Prior, S.A., Rogers, H.H., Runion, G.B., Kimball, B.A., Mauney, J.R., Lewin, K.F., Nagy, J., Hendrey, G.R.: Free-air carbon dioxide enrichment of cotton: Root morphological characteristics. – J. environ. Qual. **24**: 678-683, 1995. [Experimental installation.]
- Ranjith, S.A., Meinzer, F.C., Perry, M.H., Thom, M.: Partitioning of carboxylase activity in nitrogen-stressed sugarcane and its relationship to bundle sheath leakiness to CO₂, photosynthesis and carbon isotope discrimination. – Aust. J. Plant Physiol. **22**: 903-911, 1995. [Calculations.]
- Rao, A.S.: Chloroplast genetic engineering. – Trends Biotechnol. **19**: 8, 2001.
- Rayment, M.B., Jarvis, P.G.: Seasonal gas exchange of black spruce using an automatic branch bag system. – Can. J. Forest Res. **29**: 1528-1538, 1999.
- Rayment, M.B., Loustau, D., Jarvis, P.G.: Measuring and modeling conductances of black spruce at three organizational scales: shoot, branch and canopy. – Tree Physiol. **20**: 713-723, 2000.
- Reynolds, J.F., Kemp, P.R., Acock, B., Chen, J.-L., Moorhead, D.L.: Progress, limitations, and challenges in modeling the effects of elevated CO₂ on plants and ecosystems. – In: Koch, G.W., Mooney, H.A. (ed.): Carbon Dioxide and Terrestrial Ecosystems. Pp. 347-380. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Ps; review, 171 ref.]
- Rijnders, J.G.H.M., Armstrong, W., Darwent, M.J., Blom, C.W.P.M., Voesenek, L.A.C.J.: The role of oxygen in submergence-induced petiole elongation in *Rumex palustris*: *in situ* measurements of oxygen in petioles of intact plants using micro-electrodes. – New Phytol. **147**: 497-504, 2000. [Experimental assembly.]
- Robinson, D., Scrimgeour, C.M.: The contribution of plant C to soil CO₂ measured using $\delta^{13}\text{C}$. – Soil Biol. Biochem. **27**: 1653-1656, 1995. [Model.]
- Romero-Aranda, R., Longuenesse, J.J.: Modelling the effect of air vapour pressure deficit on leaf photosynthesis of greenhouse tomatoes: The importance of leaf conductance to CO₂. – J. hort. Sci. **70**: 423-432, 1995.
- Ryan, M.G.: Foliar maintenance respiration of subalpine and boreal trees and shrubs in relation to nitrogen content. – Plant Cell Environ. **18**: 765-772, 1995. [Ps model.]
- Ryan, M.G., Gower, S.T., Hubbard, R.M., Waring, R.H., Gholz, H.L., Cropper, W.P., Running, S.W.: Woody tissue maintenance respiration of four conifers in contrasting climates. – Oecologia **101**: 133-140, 1995. [Procedure.]
- Ryel, R.J., Beyschlag, W.: Benefits associated with steep foliage orientation in two tussock grasses of the American Intermountain West. A look at water-use-efficiency and photoinhibition. – Flora **190**: 251-260, 1995. [Model.]
- Sheriff, D.W., Mattay, J.P.: Simultaneous effects of foliar nitrogen, temperature, and humidity on gas exchange in *Pinus radiata*. – Aust. J. Plant Physiol. **22**: 615-626, 1995. [Model.]

BIBLIOGRAPHY

- Sheriff, D.W.: Gas exchange of field-grown *Pinus radiata* – relationships with foliar nutrition and water potential, and with climatic variables. – Aust. J. Plant Physiol. **22**: 1015-1026, 1995. [Model.]
- 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 micrometeorological and weighing methods. – Environ. Control Biol. **35**: 71-76, 1997. [Ps.]
- Sievänen, R., Nikinmaa, E., Nygren, P., Ozier-Lafontaine, H., Perttunen, J., Hakula, H.: Components of functional-structural tree models. – Ann. Forest Sci. **57**: 399-412, 2000.
- Smeulders, S.M., Gorissen, A., Joosten, N.N., van Veen, J.A.: Effects of short-term ozone exposure on the carbon economy of mature and juvenile Douglas firs [*Pseudotsuga menziesii* (Mirb.) Franco]. – New Phytol. **129**: 45-53, 1995. [Field fumigation system.]
- Stegemann, J., Timm, H.-C., Küppers, M.: Simulation of photosynthetic plasticity in response to highly fluctuating light: an empirical model integrating dynamic photosynthetic induction and capacity. – Trees **14**: 145-160, 1999.
- Stenberg, P., Palmroth, S., Bond, B.J., Sprugel, D.G., Smolander, H.: Shoot structure and photosynthetic efficiency along the light gradient in a Scots pine canopy. – Tree Physiol. **21**: 805-814, 2001. [Model.]
- Sundberg, B., Campbell, D., Palmqvist, K.: Predicting CO₂ 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.
- Tan, W., Hogan, G.D.: Limitations to net photosynthesis as affected by nitrogen status in jack-pine (*Pinus banksiana* Lamb.) seedlings. – J. exp. Bot. **46**: 407-413, 1995. [Calculations.]
- Teese, P.: Intraspecific variation for CO₂ compensation point and differential growth among variants in a C₃-C₄ intermediate plant. – Oecologia **102**: 371-376, 1995. [Model.]
- Terashima, I., Masuzawa, T., Ohba, H., Yokoi, Y.: Is photosynthesis suppressed at higher elevations due to low CO₂ pressure? – Ecology **76**: 2663-2668, 1995. [Model.]
- Tsuno, Y., Omochi, O., Yamaguchi, T., Nakano, J., Akaida, S.: [Relationship between leaf water content and temporary increase in the net photosynthetic rate caused by leaf excision from leaf sheath in the rice plant.] – Jap. J. Crop Sci. **64**: 492-499, 1995. [Assimilation chamber, in Jap., ab: E.]
- van der Heever, J.A., Grobbelaar, J.U.: The use of oxygen evolution to assess the short-term effects of toxicants on global photosynthetic rates. – Water SA **23**: 233-237, 1997.
- van Iersel, M.W., Bugbee, B.: A multiple chamber, semicontinuous, crop carbon dioxide exchange system: Design, calibration, and data interpretation. – J. amer. Soc. hort. Sci. **125**: 86-92, 2000.
- van Pee, M., Berckmans, D.: Quality of modelling plant responses for environment control purposes. – Computers Electronics Agr. **22**: 209-219, 1999. [Review; 51 ref.]
- Vasil'ev, A.A.: Optimizatsionnaya model' ust'ichnoy regulatsii u C₃-rastenii. 3. Reaktsiya ust'its na defitsit parov vody. [Optimization model of stomatal regulation in C₃ plants. 3. Stomatal response to water vapour pressure deficit.] – Fiziol. Rast. **42**: 582-597, 1995. [In R.]
- Vasil'ev, A.A.: Optimizatsionnaya model' ust'ichnoy regulatsii u C₃-rastenii. 4. Reaktsiya ust'its na izmenenie kontsentratsii O₂. [Optimization model of stomatal regulation in C₃ plants. 4. Stomatal response to changes in O₂ concentration.] – Fiziol. Rast. **42**: 598-602, 1995. [In R.]
- Vogel, M., Anders, S.: Ableitung von Zuwachstreppenkurven aus Messwerten der automatischen Radialzuwachsfeinmessung. – Allg. Forst- Jagd-Zeit. **166**: 211-215, 1995.
- Wilson, K.B., Baldocchi, D.D., Hanson, P.J.: Quantifying stomatal and non-stomatal limitations to carbon assimilation resulting from leaf aging and drought in mature deciduous tree species. – Tree Physiol. **20**: 787-797, 2000.
- Wohlfahrt, G., Bahn, M., Cernusca, A.: The use of the ratio between the photosynthesis parameters P_{ml} and V_{max} for scaling up photosynthesis of C₃ plants from leaves to canopies: A critical examination of different modelling approaches. – J. theor. Biol. **200**: 163-181, 1999.
- Wohlfahrt, G., Bahn, M., Haubner, E., Horak, I., Michaeler, W., Rottmar, K., Tappeiner, U., Cernusca, A.: Inter-specific variation of the biochemical limitation to photosynthesis and related leaf traits of 30 species from mountain grassland ecosystems under different land use. – Plant Cell Environ. **22**: 1281-1296, 1999. [Model.]
- Wolf, A.T., Burk, T.A., Isebrands, J.C.: Estimation of daily and seasonal whole-tree photosynthesis using Monte Carlo integration techniques. – Can. J. Forest Res. **25**: 253-260, 1995.
- Wolf, A.T., Burk, T.A., Isebrands, J.C.: Evaluation of sampling schemes for estimating instantaneous whole-tree photosynthesis in *Populus* clones: a modeling approach. – Tree Physiol. **15**: 237-244, 1995.
- Xu Hui-lian, Gauthier, L., Gosselin, A.: Effects of fertigation management on growth and photosynthesis of tomato plants grown in peat, rockwool and NFT. – Scientia Hort. **63**: 11-20, 1995. [Model.]
- Yu, Q., Goudriaan, J., Wang, T.-D.: Modelling diurnal courses of photosynthesis and transpiration of leaves on the basis of stomatal and non-stomatal responses, including photo-inhibition. – Photosynthetica **39**: 43-51, 2001.
- Zhang, H., Sharifi, M.R., Nobel, P.S.: Photosynthetic characteristics of sun versus shade plants of *Encelia farinosa* as affected by photosynthetic photon flux density, intercellular CO₂ concentration, leaf water potential, and leaf temperature. – Aust. J. Plant Physiol. **22**: 833-841, 1995. [Model.]
- 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.]
- Zhang, S., Gao, R.: Non-uniform stomatal closure of hybrid poplar clones under light stress determined by scanning electron microscopy and modification of intracellular CO₂ concentration. – Trees **14**: 376-383, 2000.
- 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

- Aalderink, R.H., Jovin, J.: Identification of the parameters describing primary production from continuous oxygen signals. – *Water Sci. Technol.* **36**: 43-51, 1997.
- Abbott, M.R., Richman, J.G., Letelier, R.M., Bartlett, J.S.: The spring bloom in the Antarctic Polar Frontal Zone as observed from a mesoscale array of bio-optical sensors. – *Deep-Sea Res. II* **47**: 3285-3314, 2000.
- Alabiso, G., Cannalire, M., Ghionda, D., Milillo, M., Leone, G., Caciorgna, O.: Particular matter and chemical-physical conditions of an inner sea: The Mar Piccolo in Taranto. A new statistical approach. – *Mar. Chem.* **58**: 373-388, 1997. [Model.]
- Alamgir, A.N.M., Kutube, K.K.: Use of mathematical growth curves in the analysis of growth and nutrient distribution patterns in wheat grown under salinity stress. – *Chittagong Univ. Studies, Part II* **21**: 37-46, 1997.
- Allali, K., Bricaud, A., Babin, M., Morel, A., Chang, P.: A new method for measuring spectral absorption coefficients of marine particles. – *Limnol. Oceanogr.* **40**: 1526-1532, 1995.
- Amthor, J.S., Koch, G.W.: Biota growth factor β : Stimulation of terrestrial ecosystem net primary production by elevated atmospheric CO₂. – In: Koch, G.W., Mooney, H.A. (ed.): *Carbon Dioxide and Terrestrial Ecosystems*. Pp. 399-414. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Models; review, 58 ref.]
- Anderson, M.C., Norman, J.M., Meyers, T.P., Diak, G.R.: An analytical model for estimating canopy transpiration and carbon assimilation fluxes based on canopy light-use efficiency. – *Agr. Forest Meteorol.* **101**: 265-289, 2000.
- Anderson, T.R., Spall, S.A., Yool, A., Cipollini, P., Challenor, P.G., Fasham, M.J.R.: Global fields of sea surface demethylsulfide predicted from chlorophyll, nutrients and light. – *J. mar. Syst.* **30**: 1-20, 2001.
- Anisimov, O., Fukshansky, L.: Optics of vegetation: implications for the radiation balance and photosynthetic performance. – *Agr. Forest Meteorol.* **85**: 33-49, 1997. [Model.]
- Courbaud, B.: Comparing light interception with stand basal area for predicting tree growth. – *Tree Physiol.* **20**: 407-414, 2000. [Model.]
- Cowling, S.A.: Simulated effects of low atmospheric CO₂ on structure and composition of North American vegetation at the Last Glacial Maximum. – *Global Ecol. Biogeogr.* **8**: 81-93, 1999. [LAI, WUE.]
- Cullen, J.J., Ciotti, Á.M., Davis, R.F., Lewis, M.R.: Optical detection and assessment of algal blooms. – *Limnol. Oceanogr.* **42**: 1223-1239, 1997. [Review, 75 ref.]
- Curran, P.J., Dungan, J.L., Peterson, D.L.: Estimating the foliar biochemical concentration of leaves with reflectance spectrometry. Testing the Kokaly and Clark methodologies. – *Remote Sens. Environ.* **76**: 349-359, 2001. [Remote sensing.]
- Danson, F.M., Aldakheel, Y.Y.: Diurnal water stress in sugar beet: Spectral reflectance measurements and modelling. – *Agronomie* **20**: 31-39, 2000.
- Danson, F.M., Rowland, C.S.: Crop LAI from neural network inversion. – *Aspects appl. Biol.* **60**: 45-52, 2000.
- Luo, Y., Mooney, H.A.: Stimulation of global photosynthetic carbon influx by an increase in atmospheric carbon dioxide concentration. – In: Koch, G.W., Mooney, H.A. (ed.): *Carbon Dioxide and Terrestrial Ecosystems*. Pp. 381-397. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Models; review, 62 ref.]
- MacFarlane, D.W., Green, E.J., Valentine, H.T.: Incorporating uncertainty into the parameters of a forest process model. – *Ecol. Model.* **134**: 27-40, 2000.
- Magnusson, G.: Diurnal measurements of F_v/F_m used to improve productivity estimates in macroalgae. – *Mar. Biol.* **130**: 203-208, 1997.
- Mäkelä, A., Landsberg, J., Ek, A.R., Burk, T.E., Ter-Mikaelian, M., Ågren, G.I., Oliver, C.D., Puttonen, P.: Process-based models for forest ecosystem management: current state of the art and challenges for practical implementation. – *Tree Physiol.* **20**: 289-298, 2000.
- Mäkelä, A., Sievänen, R., Lindner, M., Lasch, P.: Application of volume growth and survival graphs in the evaluation of four process-based forest growth models. – *Tree Physiol.* **20**: 347-355, 2000.
- Marie, D., Partensky, F., Jacquet, S., Vaulot, D.: Enumeration and cell cycle analysis of natural populations of marine picoplankton by flow cytometry using the nucleic acid stain SYBR Green I. – *Appl. environ. Microbiol.* **63**: 186-193, 1997.
- McMurtrie, R.E., Dewar, R.C., Medlyn, B.E., Jeffreys, M.P.: Effects of elevated [CO₂] on forest growth and carbon storage a modelling analysis of the consequences of changes in litter quality/quantity and root exudation. – *Plant Soil* **224**: 135-152, 2000.
- McMurtrie, R.E., Medlyn, B.E., Dewar, R.C.: Increased understanding of nutrient immobilization in soil organic matter is critical for predicting the carbon sink strength of forest ecosystems over the next 100 years. – *Tree Physiol.* **21**: 831-839, 2001.
- Meding, M.E., Jackson, L.J.: Biological implications of empirical models of winter oxygen depletion. – *Can. J. Fisheries aquat. Sci.* **58**: 1727-1736, 2001.
- Meinzer, F.C., Andrade, J.L., Goldstein G., Holbrook, N.M., Cavelier, J., Jackson, P.: Control of transpiration from the upper canopy of a tropical forest: the role of stomatal, boundary layer and hydraulic architecture components. – *Plant Cell Environ.* **20**: 1242-1252, 1997.
- Ménésguen, A., Hoch, T.: Modelling the biogeochemical cycles of elements limiting primary production in the English channel. I. Role of thermohaline stratification. – *Mar. Ecol. Progr. Ser.* **146**: 173-188, 1997.
- Mobley, C.D., Stramski, D.: Effects of microbial particles on oceanic optics: Methodology for radiative transfer modeling and example simulations. – *Limnol. Oceanogr.* **42**: 550-560, 1997.
- Moigis, A.G.: photosynthetic rates in the surface waters of the Red Sea: the radiocarbon versus the non-isotopic dilution method. – *J. Plankton Res.* **22**: 713-727, 1999. [Model.]
- Moline, M.A., Prézelin, B.B.: High-resolution time-series data for 1991/1992 primary production and related parameters at a Palmer LTER coastal site: implications for modeling carbon fixation in the Southern Ocean. – *Polar Biol.* **17**: 39-53, 1997.

BIBLIOGRAPHY

- Mudrik, V.A., Stoyanov, P., Ivanov, B.N.: Evaluation of maize productivity considering solar energy use limitation by environmental factors. – *Photosynth. Res.* **66**: 177-187, 2000. [Model.]
- Murray, A.G.: The use of simple models in the design and calibration of a dynamic 2D model of a semi-enclosed Australian bay. – *Ecol. Model.* **136**: 15-30, 2001.
- Murty, D., McMurtrie, R.E.: The decline of forest productivity as stands age: a model-based method for analysing causes for the decline. – *Ecol. Model.* **134**: 185-205, 2000.
- Neely, R.K., Wetzel, R.G.: Simultaneous use of ^{14}C and ^3H to determine autotrophic production and bacterial protein production in periphyton. – *Microb. Ecol.* **30**: 227-237, 1995.
- Pagand, P., Blancheton, J.-P., Lemoalle, J., Casellas, C.: The use of high rate algal ponds for the treatment of marine effluent from a recirculating fish rearing system. – *Aquacult. Res.* **31**: 729-736, 2000. [Recirculating system.]
- Pierson, D.C., Strömbeck, N.: A modelling approach to evaluate preliminary remote sensing algorithms: Use of water quality data from Swedish great lakes. – *Geophysica* **36**: 177-202, 2000.
- Pierson, D.C., Strömbeck, N.: Estimation of radiance reflectance and the concentrations of optically active substances in Lake Mälaren, Sweden, based on direct and inverse solutions of a simple model. – *Sci. total Environ.* **268**: 171-188, 2001.
- Pinckney, J.L., Richardson, T.L., Millie, D.F., Paerl, H.W.: Application of photopigment biomarkers for quantifying microalgal community composition and *in situ* growth rates. – *Org. Geochem.* **32**: 585-595, 2001.
- Pokorný, R., Marek, M.V.: Test of accuracy of LAI estimation by LAI-2000 under artificially changed leaf to wood area proportions. – *Biol. Plant.* **43**: 537-544, 2000.
- Pozdnyakov, D.V., Kondratyev, K.Y., Pettersson, L.H.: Remote sensing assessment of phytoplankton primary productivity: Methodological aspects. – *Earth Observation remote Sensing* **16**: 583-609, 2001.
- Prskawetz, M., Lexer, M.J.: Evaluierung des LI-COR LAI-2000 zur Ermittlung des Blattflechenindex in Buchenjungbeständen. – *Allg. Forst- Jagdzeit.* **171**: 185-191, 2000.
- Purcell, L.C.: Soybean canopy coverage and light interception measurements using digital imagery. – *Crop Sci.* **40**: 834-837, 2000.
- Radtke, P.J., Burk, T.E., Bolstad, P.V.: Estimates of the distributions of forest ecosystem model inputs for deciduous forests of eastern North America. – *Tree Physiol.* **21**: 505-512, 2001.
- Raulier, F., Bernier, P.Y., Ung, C.-H.: Modeling the influence of temperature on monthly gross primary productivity of sugar maple stands. – *Tree Physiol.* **20**: 333-345, 2000.
- Reynolds, R.A., Stramski, D., Mitchell, B.G.: A chlorophyll-dependent semianalytical reflectance model derived from field measurements of absorption and backscattering coefficients within the Southern Ocean. – *J. geophys. Res.* **106**: 7125-7138, 2001.
- Rodriguez, D., van Oijen, M., Schapendonk, A.H.M.C.: LINGRA-CC: a sink-source model to simulate the impact of climate change and management on grassland productivity. – *New Phytol.* **144**: 359-368, 1999.
- Ruddick, K.G., Gons, H.J., Rijkeboer, M., Tilstone, G.: Optical remote sensing of chlorophyll *a* in case 2 waters by use of an adaptive two-band algorithm with optimal error properties. – *Appl. Optics* **40**: 3575-3585, 2001. [Model.]
- Rutherford, J.C., Scarsbrook, M.R., Broekhuizen, N.: Grazer control of stream algae: Modeling temperature and flood effects. – *J. environ. Eng.* **126**: 331-339, 2000.
- Sampson, D.A., Janssens, I.A., Ceulemans, R.: Simulated soil CO_2 efflux and net ecosystem exchange in a 70-year-old Belgian Scots pine stand using the process model SECRETS. – *Ann. Forest Sci.* **58**: 31-46, 2001.
- Sands, P.J.: Modelling canopy production. I. Optimal distribution of photosynthetic resources. – *Aust. J. Plant Physiol.* **22**: 593-601, 1995.
- Sands, P.J.: Modelling canopy production. II. From single-leaf photosynthetic parameters to daily photosynthesis. – *Aust. J. Plant Physiol.* **22**: 603-614, 1995.
- Sands, P.J., Battaglia, M., Mummery, D.: Application of process-based models to forest management: experience with PROMOD, a simple plantation productivity model. – *Tree Physiol.* **20**: 383-392, 2000.
- Sathyendrahath, S., Cota, G., Stuart, V., Maass, H., Platt, T.: Remote sensing of phytoplankton pigments: a comparison of empirical and theoretical approaches. – *Int. J. remote Sensing* **22**: 249-273, 2001.
- Schall, P.: Application of the model FIWALD to the Solling spruce site. – *Ecol. Model.* **83**: 151-162, 1995.
- Schartau, M., Oschlies, A., Willebrand, J.: Parameter estimates of a zero-dimensional ecosystem model applying the adjoint method. – *Deep-Sea Res.* **48**: 1769-1800, 2001.
- Scheirer, R., Macke, A.: On the accuracy of the independent column approximation in calculating the downward fluxes in the UVA, UVB, and PAR spectral ranges. – *J. geophys. Res.* **106**: 14301-14312, 2001.
- Schultz, H.R.: Grape canopy structure, light microclimate and photosynthesis. I. A two-dimensional model of the spatial distribution of surface area densities and leaf ages in two canopy systems. – *Vitis* **34**: 211-215, 1995.
- Sedykh, V.N.: Using aerial photography and satellite imagery to monitor forest cover in western Siberia. – *Water Air Soil Pollut.* **82**: 499-507, 1995. In: Apps, M.J., Price, D.T., Wisniewski, J. (ed.): *Boreal Forests and Global Change*. Pp. 499-507. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Serra, T., Colomer, J., Cristina, X.P., Vila, X., Arellano, J.B., Casamitjana, X.: Evaluation of laser *in situ* scattering instrument for measuring concentration of phytoplankton, purple sulfur bacteria, and suspended inorganic sediments in lakes. – *J. environ. Eng.* **127**: 1023-1030, 2001.
- Serrano, L., Gamon, J.A., Peñuelas, J.: Estimation of canopy photosynthetic and nonphotosynthetic components from spectral transmittance. – *Ecology* **81**: 3149-3162, 2000.
- Sievänen, R., Lindner, M., Mäkelä, A., Lasch, P.: Volume growth and survival graphs: a method for evaluating process-based forest growth models. – *Tree Physiol.* **20**: 357-365, 2000.
- Skliris, N., Elkalay, K., Goffart, A., Frangoulis, C., Hecq, J.H.: One-dimensional modelling of the plankton ecosystem of the north-western Corsican coastal area in relation to meteorological constraints. – *J. mar. Syst.* **27**: 337-362, 2001.

- Smith, C.L., Tett, P.: A depth-resolving numerical model of physically forced microbiology at the European shelf edge. – *J. mar. Syst.* **26**: 1-36, 2000.
- Smith, M.-L., Martin, M.E.: A plot-based method for rapid estimation of forest canopy chemistry. – *Can. J. Forest Res.* **31**: 549-555, 2001.
- Soetaert, K., Herman, P.M.J., Middelburg, J.J., Heip, C., Smith, C.L., Tett, P., Wild-Allen, K.: Numerical modelling of the shelf break ecosystem: reproducing benthic and pelagic measurements. – *Deep-Sea Res. II* **48**: 3141-3177, 2001.
- Spitz, Y.H., Moisan, J.R., Abbott, M.R.: Configuring an ecosystem model using data from the Bermuda Atlantic Time Series (BATS). – *Deep-Sea Res. II* **48**: 1733-1768, 2001.
- Stenberg, P.: Penumbra in within-shoot and between-shoot shading in conifers and its significance for photosynthesis. – *Ecol. Model.* **77**: 215-231, 1995. [Model.]
- Stickney, H.L., Hood, R.R., Stoecker, D.K.: The impact of mixotrophy on planktonic marine ecosystems. – *Ecol. Model.* **125**: 203-230, 2000.
- Stramski, D., Bricaud, A., Morel, A.: Modeling the inherent optical properties of the ocean based on the detailed composition of the planktonic community. – *Appl. Optics* **40**: 2929-2945, 2001.
- Svejkovsky, J., Shandley, J.: Detection of offshore plankton blooms with AVHRR and SAR imagery. – *Int. J. Remote Sensing* **22**: 471-485, 2001.
- Terrestrial Ecosystems. Pp. 317-345. Academic Press, San Diego – New York – Boston – London – Sydney – Tokyo – Toronto 1996. [Ps; review, 113 ref.]
- Thomas, S.C., Winner, W.E.: Leaf area index of an old-growth Douglas-fir forest estimated from direct structural measurements in the canopy. – *Can. J. Forest Res.* **30**: 1922-1930, 2000.
- Titlyanov, E., Cherbady, I., Kolmakov, P.: Daily variations of primary production and dependence of photosynthesis on irradiance in seaweeds and seagrass *Thalassodendron ciliatum* of the Seychelles Islands. – *Photosynthetica* **31**: 101-115, 1995. [Equipment for measuring rates of photosynthesis and respiration in aquatic macrophytes.]
- Travaso, M.I., Delécolle, R.: Adaptation of the CERES-wheat model for large area yield estimation in Argentina. – *Eur. J. Agron.* **4**: 347-353, 1995.
- Tuzet, A., Perrier, A., Castell, J.F., Zurfluh, O.: Energy and water vapour transfers in a particular shrub-grass intercrop: the fallow savanna. – In: Sinoquet, H., Cruz, P. (ed.): *Ecophysiology of Tropical Intercropping*. Pp. 137-152. Institut National de la Recherche Agronomique, Paris 1995.
- Twardowski, M.S., Boss, E., Macdonald, J.B., Pegau, W.S., Barnard, A.H., Zaneveld, J.R.V.: A model for estimating bulk refractive index from the optical backscattering ratio and the implications for understanding particle composition in case I and case II waters. – *J. geophys. Res.* **106**: 14129-14142, 2001.
- Valentine, H.T., Herman, D.A., Gove, J.H., Hollinger, D.Y., Solomon, D.S.: Initializing a model stand for process-based projection. – *Tree Physiol.* **20**: 393-398, 2000.
- Vandendriessche, H.J., van Ittersum, M.K.: Crop models and decision support systems for field forecasting and management of the sugar beet crop. – *Eur. J. Agron.* **4**: 403-412, 1995.
- van Duin, E.H.S., Blom, G., Los, F.J., Maffione, R., Zimmerman, R., Cerco, C.F., Dortch, M., Best, E.P.H.: Modeling underwater light climate in relation to sedimentation, resuspension, water quality and autotrophic growth. – *Hydrobiologia* **444**: 25-42, 2001.
- Vertessy, R.A., Benyon, R.G., O'Sullivan, S.K., Gribben, P.R.: Relationships between stem diameter, sapwood area, leaf area and transpiration in a young mountain ash forest. – *Tree Physiol.* **15**: 559-567, 1995.
- Vischetti, C., Businelli, M., Marini, M., Merlini, L.: Comparison of PRZM-2 computer model predictions with field data on the fate of napropamide and pendimethalin in soils. – *Eur. J. Agron.* **4**: 355-361, 1995. [Pesticide Root Zone Model.]
- Voronin, P.Y., Konovalov, P.V., Lukyanovich, V.I., Bolondinskii, V.K., Kaibiyainen, L.K.: Object-directed approach ecomap: A method to graphic render of Russian territory photosynthesis carbon stock data base. – In: Mathis, P. (ed.): *Photosynthesis: from Light to Biosphere*. Vol. V. Pp. 1013-1016. Kluwer Academic Publishers, Dordrecht – Boston – London 1995.
- Vose, J.M., Bolstad, P.V.: Challenges to modelling NPP in diverse eastern deciduous forests: species-level comparisons of foliar respiration responses to temperature and nitrogen. – *Ecol. Model.* **122**: 165-174, 1999. [Net primary production.]
- Wallace, J.S.: Towards a coupled light partitioning and transpiration model for use in intercrops and agroforestry. – In: Sinoquet, H., Cruz, P. (ed.): *Ecophysiology of Tropical Intercropping*. Pp. 153-162. Institut National de la Recherche Agronomique, Paris 1995.
- Walsby, A.E.: Modelling the daily integral of photosynthesis by phytoplankton: its dependence on the mean depth of the population. – *Hydrobiologia* **349**: 65-74, 1997.
- Wang, Y.P., Gifford, R.M.: A model of wheat grain growth and its application to different temperature and carbon dioxide levels. – *Aust. J. Plant Physiol.* **22**: 843-855, 1995.
- Wang, Y.P., Polglase, P.J.: Carbon balance in the tundra, boreal forest and humid tropical forest during climate change: scaling up from leaf physiology and soil carbon dynamics. – *Plant Cell Environ.* **18**: 1226-1244, 1995.
- Waring, R.H., Law, B.E., Goulden, M.L., Bassow, S.L., McCreight, R.W., Wofsy, S.C., Bazzaz, F.A.: Scaling gross ecosystem production at Harvard Forest with remote sensing: a comparison of estimates from a constrained quantum-use efficiency model and addy correlation. – *Plant Cell Environ.* **18**: 1201-1213, 1995.
- Wensel, L.C., Olson, C.M.: Tree taper models for major California conifers. – *Hilgardia* **62**(3): 1-16, 1995.
- Wensel, L.C., Olson, C.M.: Tree volume equations for major California conifers. – *Hilgardia* **62**(5): 1-73, 1995.
- Wu, X., Merchuk, J.C.: A model integrating fluid dynamics in photosynthesis and photoinhibition processes. – *Chem. Eng. Sci.* **56**: 3527-3538, 2001. [Tubular loop reactor.]
- Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L., Sampson, P.H.: Chlorophyll fluorescence effects on vegetation apparent reflectance: II. Laboratory and airborne canopy-level measurements with hyperspectral data. – *Remote Sens. Environ.* **74**: 596-608, 2000.

BIBLIOGRAPHY

Zarco-Tejada, P.J., Miller, J.R., Mohammed, G.H., Noland, T.L.: Chlorophyll fluorescence effects on vegetation apparent

reflectance: I. Leaf-level measurements and model simulation. – *Remote Sens. Environ.* **74**: 582-595, 2000.

E. Measurement of leaf area, and surface and volume of plant organs

Anda, A., Tóbiás, F.: Egyedi kukoricalevél területének meghatározására szolgáló eljárások és műszerek összehasonlító elemzése. [Comparative study for the estimation of single leaf area in maize and for the verification of two different leaf area meters.] – *Növénytermelés* **48**: 55-67, 1999. [In Hung., ab: E.]

Bange, M.P., Hammer, G.L., Milroy, S.P., Rickert, K.G.: Improving estimates of individual leaf area of sunflower. – *Agron. J.* **92**: 761-765, 2000.

Barclay, H.J.: Conversion of total leaf area to projected leaf area in lodgepole pine and Douglas-fir. – *Tree Physiol.* **18**: 185-193, 1998.

Eguchi, T.: A new method for on-line measurement of diurnal change in potato tuber growth under controlled environments. – *J. exp. Bot.* **51**: 961-964, 2000. [A laser micrometer system.]

Elings, A.: Estimation of leaf area in tropical maize. – *Agron. J.* **92**: 436-444, 2000.

Montero, F.J., de Juan, J.A., Cuesta, A., Brasa, A.: Nondestructive methods to estimate leaf area in *Vitis vinifera*

L. – *HortScience* **35**: 696-698, 2000.

Serrano, L., Gamon, J.A., Berry, J.: Estimation of leaf area with an integrating sphere. – *Tree Physiol.* **17**: 571-576, 1997.

Stow, C.A., Carpenter, S.R., Lathrop, R.C.: A Bayesian observation error model to predict cyanobacterial biovolume from spring total phosphorus in lake Mendota, Wisconsin. – *Can. J. Fisheries aquat. Sci.* **54**: 464-473, 1997.

Tsuda, M.: Errors in leaf area measurement with an automatic area meter due to leaf chlorophyll in crop plants. – *Ann. Bot.* **84**: 799-801, 1999.

van Delden, A., Kropff, M.J., Haverkort, A.J.: Modeling temperature- and radiation-driven leaf area expansion in the contrasting crops potato and wheat. – *Field Crops Res.* **72**: 119-142, 2001.

Villalobos, F.J., Orgaz, F., Mateos, L.: Non-destructive measurement of leaf area in olive (*Olea europea* L.) trees using a gap inversion method. – *Agr. Forest Meteorol.* **76**: 29-42, 1995.

F. PAR and environmental measurements

de Castro, F.: Light spectral composition in a tropical forest: measurements and model. – *Tree Physiol.* **20**: 49-56, 2000.

de Castro, F., Fetcher, N.: The effect of leaf clustering in the interception of light in vegetal canopies: theoretical considerations. – *Ecol. Model.* **116**: 125-134, 1999.

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. [PAR measuring devices; review, 112 ref.]

Grant, R.H.: Shadow-band corrections for photosynthetically active radiation under clear and overcast conditions. – *Agr. Forest Meteorol.* **87**: 213-222, 1997.

Hassika, P., Berbigier, P., Bonnefond, J.M.: Measurement and modelling of the photosynthetically active radiation transmitted in a canopy of maritime pine. – *Ann. Sci. forest.* **54**: 715-730, 1997.

Hicklenton, P.R., Heins, R.D.: Temperature. – 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. 31-41. Iowa State University, Ames 1997.

Jacquemoud, S., Bacour, C., Poilvé, H., Frangi, J.-P.: Comparison of four radiative transfer models to simulate plant canopies reflectance: Direct and inverse mode. – *Remote Sens. Environ.* **74**: 471-481, 2000.

Kiniri, J.R., Tischler, C.R., van Esbroeck, G.A.: Radiation use efficiency and leaf CO₂ exchange for diverse C₄ grasses. – *Biomass Bioenerg.* **17**: 95-112, 1999. [PAR model.]

Kucharik, C.J., Norman, J.M., Gower, S.T.: Characterization of radiation regimes in nonrandom forest canopies: theory, measurements, and a simplified modeling approach. – *Tree Physiol.* **19**: 695-706, 1999.

Kühl, M., Lassen, C., Revsbech, N.P.: A simple light meter for measurements of PAR (400 to 700 nm) with fiber-optic microprobes: application for *P* vs *E₀* (PAR) measurements in a microbial mat. – *Aquat. microb. Ecol.* **13**: 197-207, 1997.

Lantinga, E.A., Nassiri, M., Kropff, M.J.: Modelling and measuring vertical light absorption within grass-clover mixtures. – *Agr. Forest Meteorol.* **96**: 71-83, 1999.

Miyashita, Y., Kimura, T., Kitya, Y., Kubota, C., Kozai, T.: Effects of red light on the growth and morphology of potato plantlets *in vitro*: using light emitting diodes (LEDs) as a light source for micropropagation. – *Acta Hort.* **418**: 169-173, 1997. [Ps, Chl.]

Palva, L., Garam, E., Manoochchri, F., Sepponen, R., Hari, P., Rajala, K., Ruotoistenmäki, H., Seppälä, I.: A novel multipoint measuring system of photosynthetically active radiation. – *Agr. Forest Meteorol.* **89**: 141-147, 1998.

Palva, L., Garam, E., Siivola, E., Sepponen, R., Hari, P.: Quantifying spatial variability of photosynthetically active radiation within canopies using a multipoint measuring system. – *Agr. Forest Meteorol.* **92**: 163-171, 1998.

Palva, L., Markkanen, T., Siivola, E., Garam, E., Linnavuo, M., Nevas, S., Manoochchri, F., Palmroth, S., Rajala, K., Ruotoistenmäki, H., Vuorivirta, T., Seppälä, I., Vesala, T., Hari, P., Sepponen, R.: Tree scale distributed multipoint measuring system of photosynthetically active radiation. – *Agr. Forest Meteorol.* **106**: 71-80, 2001.

- Sager, J.C., McFarlane, J.C.: Radiation. – 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. 1-29. Iowa State University, Ames 1997. [Sources of radiation; review, 77 ref.]
- Santas, R., Koussoulaki, A., Häder, D.-P.: In assessing biological UV-B effects, natural fluctuations of solar radiation should be taken into account. – *Plant Ecol.* **128**: 93-97, 1997; In: Rozema, J., Gieskes, W.W.C., van de Geijn, S.C., Nolan, C., de Boois, H. (ed.): UV-B and Biosphere. Pp. 93-97. Kluwer Academic Publishers, Dordrecht – Boston – London 1997. [PAR and UV monitoring apparatus.]
- Smolander, S., Stenberg, P.: A method for estimating light interception by a conifer shoot. – *Tree Physiol.* **21**: 797-803, 2001.
- Spomer, L.A., Tibbitts, T.W.: Humidity. – 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. 43-64. Iowa State University, Ames 1997. [Review, 117 ref.]
- Veste, M., Herppich, W.B.: Influence of diurnal and seasonal fluctuations in atmospheric CO₂ concentration on the net CO₂ exchange of poplar leaves. – *Photosynthetica* **38**: 69-81, 1995. [Measuring air humidity.]
- Wagner, S.: Übertragung strahlungsrelevanter Wetterinformationen aus punktuellen PAR-Sensordaten in größere Versuchsflächenanlagen mit Hilfe hemisphärischer Foros. – *Allg. Forst- J.-Zeit.* **167**: 34-40, 1995.
- ### G. Cultivation of experimental material and phytotronics
- Caldwell, M.M., Flint, S.D.: Uses of biological spectral weighting functions and the need of scaling for the ozone problem. – *Plant Ecol.* **128**: 66-76, 1997; In: Rozema, J., Gieskes, W.W.C., van de Geijn, S.C., Nolan, C., de Boois, H. (ed.): UV-B and Biosphere. Pp. 66-76. Kluwer Academic Publishers, Dordrecht – Boston – London 1997. [Review, 59 ref.]
- Carlozzi, P., Sacchi, A.: Biomass production and studies on *Rhodospseudomonas palustris* grown in an outdoor, temperature controlled, underwater tubular photobioreactor. – *J. Biotechnol.* **88**: 239-249, 2001.
- Charlton, P.J., McGrath, J.E., Harfoot, C.G.: The Winogradsky plate, a convenient and efficient method for the enrichment of anoxygenic phototrophic bacteria. – *J. microbiol. Meth.* **30**: 161-163, 1997.
- Janssen, M., de Bresser, L., Baijens, T., Tramper, J., Mur, L.R., Snel, J.F.H., Wijffels, R.H.: Scale-up aspects of photobioreactors: effects of mixing-induced light/dark cycles. – *J. appl. Phycol.* **12**: 225-237, 2000.
- Jeffrey, S.W., LeRoi, J.-M.: Simple procedures for growing SCOR reference microalgal cultures. – In: Jeffrey, S.W., Mantoura, R.F.C., Wright, S.W. (ed.): Phytoplankton Pigments in Oceanography: Guidelines to Modern Methods. Pp. 181-205. UNESCO Publishing, Paris 1997. [Review, 35 ref.]
- Kataoka, N., Miya, A., Kiriya, K.: Studies on hydrogen production by continuous culture system of hydrogen-producing anaerobic bacteria. – *Water Sci. Technol.* **36**: 41-47, 1997. [*Clostridium* and *Ps* bacteria.]
- Kitaya, Y., Ohmura, Y., Kozai, T., Kubota, C.: Visualization and analysis of air currents in plant tissue culture vessels. – *Environ. Control Biol.* **35**: 139-141, 1997.
- Kittas, C., Baille, A., Giaglaras, P.: Influence of covering material and shading on the spectral distribution of light in greenhouses. – *J. agr. Eng. Res.* **73**: 341-351, 1999.
- Krizek, D.T., Mirecki, R.M., Bailey, W.A.: Uniformity of photosynthetic photon flux and growth of 'Poinsett' cucumber plants under metal halide and microwave-powered sulfur lamps. – *Biotronics* **27**: 81-92, 1998.
- Krizek, D.T., Mirecki, R.M., Britz, S.J., Harris, W.G., Thimijan, R.W.: Spectral properties of microwave-powered sulfur lamps in comparison to sunlight and high-pressure sodium/metal halide lamps. – *Biotronics* **27**: 69-80, 1998.
- Krizek, D.T., Sager, J.C., Tibbitts, T.W.: Guidelines for measurement and reporting of environmental conditions. – 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, 39 ref.]
- Laliberté, G., Olguin, E.J., de la Noüe, J.: Mass cultivation and wastewater treatment using *Spirulina*. – In: Vonshak, A. (ed.): *Spirulina platensis (Arthrospira)*. Physiology, Cell-Biology and Biotechnology. Pp. 159-173. Taylor Francis, London – Bristol 1997. [Review, 69 ref.]
- León, R., Galván, F.: Analysis of effective light in different photobioreactors: its influence on growth, photosynthetic activity and glycerol production by the freshwater green alga *Chlamydomonas reinhardtii*. – *World J. Microbiol. Biotechnol.* **13**: 237-239, 1997.
- Lorenzen, B., Brix, H., Schierup, H.-H., Madsen, T.V.: Design and performance of the Phyto-Nutri-Tron: a system for controlling the root and shoot environment for whole-plant ecophysiological studies. – *Environ. exp. Bot.* **39**: 141-157, 1998.
- Markov, S.A., Weaver, P.F., Seibert, M.: Spiral tubular bioreactors for hydrogen production by photosynthetic microorganisms. Design and operation. – *Appl. Biochem. Biotechnol.* **63-65**: 577-584, 1997.
- Matsunaga, T., Hatano, T., Yamada, A., Matsumoto, M.: Microaerobic hydrogen production by photosynthetic bacteria in a double-phase photobioreactor. – *Biotechnol. Bioeng.* **68**: 647-651, 2000.
- Mitsuhashi, S., Hosaka, K., Tomonaga, E., Muramatsu, H., Tanishita, K.: Effects of shear flow on photosynthesis in a dilute suspension of microalgae. – *Appl. Microbiol. Biotechnol.* **42**: 744-749, 1995. [Cultivation apparatus.]
- Molina Grima, E., Acien Fernández, F.G., García Camacho, F., Chisti, Y.: Photobioreactors: light regime, mass transfer, and scaleup. – *J. Biotechnol.* **70**: 231-247, 1999.
- Molina Grima, E., García Canacho, F., Sánchez Pérez, J.A., Acien Fernández, F.G., Fernández Sevilla, J.M.: Evaluation

BIBLIOGRAPHY

- of photosynthetic efficiency in microalgal cultures using averaged irradiance. – *Enzyme microb. Technol.* **21**: 375-381, 1997.
- Morrow, R.C., Wheeler, R.M.: Plant physiological disorders. – 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. 133-141. Iowa State University, Ames 1997. [Review; 70 ref.]
- Nagase, H., Yoshihara, K.-I., Eguchi, K., Yokota, Y., Matsui, R., Hirata, K., Miyamoto, K.: Characteristics of biological NO_x removal from flue gas in a *Dunaliella tertiolecta* culture system. – *J. Ferment. Bioeng.* **83**: 461-465, 1997. [Algae mass cultures.]
- Nakajima, F., Kamiko, N., Yamamoto, K.: Organic wastewater treatment without greenhouse gas emission by photosynthetic bacteria. – *Water Sci. Technol.* **35**: 285-291, 1997.
- Niu, G., Kozai, T.: Simulation of CO₂ concentration in the culture vessel and growth of plantlets in micropropagation. – *Acta Hort.* **456**: 37-43, 1998.
- Ogbonna, J.C., Masui, H., Tanaka, H.: Sequential heterotrophic/autotrophic cultivation – An efficient method of producing *Chlorella* biomass health food and animal feed. – *J. appl. Phycol.* **9**: 359-366, 1997.
- Ogbonna, J.C., Tanaka, H.: Cyclic autotrophic/heterotrophic cultivation of photosynthetic cells: A method of achieving continuous cell growth under light/dark cycles. – *Bioresour. Technol.* **65**: 65-72, 1998.
- Ogbonna, J.C., Tomiyama, S., Tanaka, H.: Production of α-tocopherol by sequential heterotrophic-phototrophic cultivation of *Euglena gracilis*. – *J. Biotechnol.* **70**: 213-221, 1999. [Scheme of cultivation system.]
- Pospíšilová, J., Tichá, I., Kadlecěk, P., Haisel, D., Plzák, Š.: Acclimation of micropropagated plants to *ex vitro* conditions. – *Biol. Plant.* **42**: 481-497, 1999. [Ps, Chl; review, 107 ref.]
- Qiang, H., Faiman, D., Richmond, A.: Optimal tilt angles of enclosed reactors for growing photoautotrophic microorganisms outdoors. – *J. Ferment. Bioeng.* **85**: 230-236, 1998.
- Sánchez Mirón, A., Contreras Gómez, A., García Camacho, F., Molina Grima, E., Chisti, Y.: Comparative evaluation of compact photobioreactors for large-scale monoculture of microalgae. – *J. Biotechnol.* **70**: 249-270, 1999.
- Sawayama, S., Hanada, S., Kamagata, Y.: Isolation and characterization of phototrophic bacteria growing in lighted upflow anaerobic sludge blanket reactor. – *J. Biosci. Bioeng.* **89**: 396-399, 2000. [Laboratory scale reactor.]
- Sawayama, S., Inoue, S., Tsukahara, K., Yagishita, T.: Phototrophic bacterial production of oleic acid in an illuminated upflow anaerobic sludge blanket reactor. – *Biotechnol. Lett.* **23**: 195-199, 2001. [Cultivation of photosynthetic bacteria.]
- Tibbitts, T.W.: Air contaminants. – 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. 81-86. Iowa State University, Ames 1997. [Construction materials, toxicity tests.]
- Torresen, K.S., Lotz, L.A.P.: Growth of crop and weeds in growth chambers and outdoors. – *Acta Agr. scand.* **B 50**: 66-74, 2000.
- Tredici, M.R., Zittelli, G.C.: Efficiency of sunlight utilization: Tubular versus flat photobioreactors. – *Biotechnol. Bioeng.* **57**: 187-197, 1998.
- Tsygankov, A.A.: Laboratornye fotobioreaktory. [Laboratory scale photobioreactors.] – *Priklad. Biokhim. Mikrobiol.* **37**: 387-397, 2001. [In R, ab: E.]
- Wang, J.-S., Araki, T., Ogawa, T., Sakai, M., Matsuoka, M., Fukuda, H.: Prediction of photosynthetic production rate of ethylene using a recombinant cyanobacterium. – *J. theor. Biol.* **196**: 9-17, 1999. [Scheme of photobioreactor.]
- 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*. 2nd Ed. Pp. 925-941. Marcel Dekker, New York – Basel 2002. [Review; 119 ref.]
- Wilson, P.D.G., Hilton, M.G., Waspe, C.R., Steer, D.C., Wilson, D.R.: Production of ¹³C-labelled β-carotene from *Dunaliella salina*. – *Biotechnol. Lett.* **19**: 401-405, 1997.
- Brookes, J.D., Geary, S.M., Ganf, G.G., Burch, M.D.: Use of FDA and flow cytometry to access metabolic activity as an indicator of nutrient status in phytoplankton. – *Mar. Freshwater Res.* **51**: 817-823, 2000.
- Cadene, M., Chait, B.T.: A robust, detergent-friendly method for mass spectrometric analysis of integral membrane proteins. – *Anal. Chem.* **72**: 5655-5658, 2000.
- Comstock, J.P.: Correction of thermocouple psychrometer readings for the interaction of temperature and actual water potential. – *Crop Sci.* **40**: 709-712, 2000.
- Dyukova, T., Robertson, B., Weetall, H.: Optical and electrical characterization of bacteriorhodopsin films. – *BioSystems* **41**: 91-98, 1997. [Use of image storage media.]
- Feldhake, C.M., Glenn, D.M.: Estimation of pasture drought severity using canopy red-to-far-red radiance. – *Environ. exp. Bot.* **38**: 81-86, 1997.
- Franqueira, D., Orosa, M., Torres, E., Herrero, C., Cid, A.: Potential use of flow cytometry in toxicity studies with microalgae. – *Sci. total Environ.* **247**: 119-126, 2000. [Chl.]
- González, J.E., Tsien, R.Y.: Improved indicators of cell membrane potential that use fluorescence resonance energy transfer. – *Chem. Biol.* **4**: 269-277, 1997. [Car.]
- Hianik, T., Rybár, P., Kostner, G.M., Hermetter, A.: Molecular acoustic as a new tool for the study of biophysical properties of lipoproteins. – *Biophys. Chem.* **67**: 221-228, 1997.
- Janssens, I.A., Ceulemans, R.: Spatial variability in forest soil CO₂ efflux assessed with a calibrated soda lime technique. – *Ecol. Lett.* **1**: 95-98, 1998. [IRGA.]
- McDonald, A.J., Riha, S.I.: Model of crop:weed competition applied to maize:*Abutilon theophrasti* interactions. I. Model description and evaluation. – *Weed Res.* **39**: 371-381, 1999. [Growth analysis.]