

Christer Sundqvist

4 December 1943 – 15 July 2009



Christer Sundqvist got an early start in his acquaintance with plants and their dependence on light. He grew up as the son of a commercial plant grower, for whom the photoperiodic control of flowering was important. Already as a young boy Christer had an interest in chemistry and got a "Young Scientists Award" for his achievements in this field.

Christer spent most of his life in Göteborg, the West coast port of Sweden, where he studied plant physiology under Hemming Virgin. It was Virgin who introduced him to his main research area, chlorophyll formation and chloroplast genesis, and who stimulated his interest in phytochrome.

*In the early 1950's at the Carnegie Institution of Washington, James H. Smith had extracted and partly purified a pigment-protein complex that he called protochlorophyll holochrome. Later on, when more became known about the enzyme protein, it was named NADPH-protochlorophyllide oxidoreductase, or POR for short. It is when in complex with POR and NADPH that protochlorophyllide is photoreduced to chlorophyllide a. The amount of protochlorophyllide in a plant can be very much increased by administration of the precursor 5-aminolevulinic acid, but under ordinary light conditions this is not converted to chlorophyll. Christer's first contribution to the scientific literature (Transformation of protochlorophyllide formed from exogenous δ -aminolevulinic acid in continuous light and in flashlight. *Physiol. Plantarum* 22, 147-156, 1969) shows how this obstacle can be overcome by specific light treatments; this first paper is still being frequently cited in the 2000's. During the following decade Christer continued to find out more about the conditions for this effect, and this research is the theme in his doctoral thesis from 1972.*

Gradually Christer's interest widened to structural aspects of the phototransformation of protochlorophyllide and ensuing reactions. In the etioplasts of dark-grown seedlings there is a structure called the prolamellar body, and when the seedlings are exposed to light this is gradually replaced by thylakoids as the etioplast is transformed into a chloroplast. Together with one of us (MR) and many others Christer studied the relations between chemical and structural changes.

Christer made many short research visits to various institutions abroad. The years 1979-1983 mark a more extended exception to his adherence to his place of birth, Göteborg. He spent a research year at the Department of Plant Biology of the Carnegie Institution of Washington, Stanford, the institution where the protochlorophyll story started. This department has been an important source of inspiration for many Swedish plant scientists, including Christer's mentor Hemming Virgin and one of us (LOB). There, with Winslow Briggs, he took up research on a problem initiated by Virgin in 1962, the light-induced unrolling of grass leaves. Also through other projects going on there he got an introduction to phytochrome research. This proved very useful during the remaining "off-Göteborg" time spent in Lund, where research was carried out on various photochromic pigment proteins. A long series of papers regarding the change of orientation of the transition moment of phytochrome during photoconversion between red and far-red absorbing forms resulted. For these studies photoselection and linear dichroism measurements were carried out on immobilized phytochrome molecules.

In 1983 Christer was appointed professor and head of the Department of Plant Physiology in Göteborg. This meant many new duties and assignments. He served as Dean of biology and geosciences 1987-1990, and member of the biology committee of the National Research Council 1985-1991. However, he managed to maintain a strong research activity and interest in his undergraduate and graduate students. He became a member of the Royal Swedish Academy of Sciences in 1985, the Royal Society of Arts and Science in 1987, and the Royal Physiographical Society in 1996. In 1998 he was awarded the Linnaeus Prize for Botany by the latter Society.

Christer's predecessor, Hemming Virgin, enjoyed 22 years of productive emeritus status, and no doubt Christer had hoped for the same. Besides science, his main interests were in his garden, where he grew and propagated a great variety of plants, which he generously shared with friends. His wish was to spend more time with this relaxing hobby. But cancer struck suddenly and unexpectedly just when well-earned retirement was about to start. A happy moment for Christer during this hard time was when his last PhD student handed him her just finished PhD Thesis a short time before he passed away. We, and many others, miss Christer very much.

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