

Stumpf wins Award in Lipid Chemistry

P.K. Stumpf, professor of biochemistry and biophysics, University of California, Davis, has been named recipient of the 11th annual Award in Lipid Chemistry of the American Oil Chemists' Society. The Award will be presented at the Society's 48th Annual Fall Meeting to be held September 29-October 2, 1974, in Philadelphia, Pennsylvania.

The Award is presented to an outstanding scientist in the field of lipid chemistry. Established in 1964, the Award in Lipid Chemistry recognizes the accomplishment of outstanding original research in lipid chemistry, the results of which have been presented through publication of technical papers of high quality. Preference is given to those actively associated with research in lipid chemistry who have made fundamental discoveries that affect large segments of the lipid field.

Previous Awards were presented to: Erich Baer, Ernest Klenk, H.E. Carter, Sune Bergstrom, Daniel Swern, H.J. Dutton, E.P. Kennedy, E.S. Lutton, A.T. James, and F.D. Gunstone.

Obituaries

M.M. Wooden, of Houston Laboratories, Houston, Texas, died on March 31, 1974.

Walter Lengsfelder, a well known perfumer, cofounder and former president of Fluoroma, a predecessor of UOP Fragrances, died at the age of 69 on June 25, 1974.

He was associated with the fragrance industry for more than 40 years and was recognized as one of its top creative perfumers. He maintained his association with the industry until the time of his death, serving as a special consultant on perfumery to UOP Fragrances. ■

• President's Club. . .

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Harry A. Monroe, Jr., chem., U.S.D.A., ERRC, 600 E. Mermaid Ln., Philadelphia, Pa., 19118.

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Stephen H. Safe, assoc. prof., Department of Chemistry, University of Guelph, Guelph, Ont., Canada.

Abdus Sattar, grad. stu., Department of Food Science, University of Guelph, Guelph, Ont., Canada.

Carlos E. Soza Barrundia, plt. eng., Proagro, S.A., Km. 56, Escuintla, Escuintla, Guatemala, C.A.

Walid A.R. Tannir, Anal. chem., M.O. Gandour & Sons, P.O. Box 494, Beirut, Lebanon.

A. Tietz-Devir, prof., Department of Biochemistry, Tel-Aviv University, Tel-Aviv, Israel.

Derek N. Zinkhon, chief chem., Hartsville Oil Mill, 100 S. 5th St., P.O. Box 490, Hartsville, S.C. ■

Stumpf's major discoveries and advances in knowledge in the areas of fatty acid biosynthesis and desaturation and of α -oxidation and β -oxidation in a whole range of plant systems have affected a large part of the lipid field.

More specifically, his biosynthetic studies have a growing importance and relevance in these days of food raw materials' shortages and increasing dependence upon plant products as a source of these raw materials, particularly of fats and oils. Also, his original studies on lipid oxidation pathways already have led to the recognition of the biochemical deficiency responsible for the disease known as Refsum's syndrome.

In 1951, Stumpf discovered an unusual type of oxidation of fatty acids in plants, namely the α -oxidation sequence, which allows a C_1 cleavage to CO_2 from the carboxyl end of the free fatty acid. Further understanding of the mechanism of this system recently has been elucidated in Stumpf's laboratory where he has developed a unified mechanism involving an α -hydroxyperoxyl fatty acid as the common intermediate in the formation of α -hydroxy acids and/or fatty acids containing one less carbon atom.

In the area of β -oxidation, Stumpf demonstrated for the first time, the in vitro β -oxidation of fatty acids in plant tissues. In 1958, he elucidated the so-called modified β -oxidation pathway of propionic acid which completely explains propionate degradation to CO_2 and malonyl CoA by a nonvitamin B_{12} pathway (important since the B_{12} cobalamines are nonfunctioning in plants). He also demonstrated that propionate, formed by a single α -oxidation and multiple β -oxidation of even chain fatty acids, is a direct precursor of β -alanine, an essential component of coenzyme A and acyl carrier protein.

The in vitro biosynthesis of fatty acid from acetate was first demonstrated in 1957 in Stumpf's laboratory. In 1961, he engaged in a series of experiments to define the complete pathway of fatty acid synthesis and desaturation in the chloroplast, the organelle essential for photosynthesis. Stumpf was able to conclude that (A) with the exception of biotin carboxy carrier protein which is grana bound, all the de novo-soluble biosynthetic enzymes are in the stroma phase of the chloroplasts, including acyl carrier protein and the stearyl ACP desaturase; (B) the synthetase systems are procaroytic in nature; (C) a unique series of reactions are involved in synthesizing oleic, linoleic, and α -linolenic acids in chloroplasts. Thus, oleic and linoleic acids are formed from stearyl ACP by a sequential desaturation, but α -linolenic is formed by the desaturation of dodecanoic acid to a dodecatrienoic acid which is then elongated in the chloroplasts to α -linolenic acid. Thus, linolenic acid is not derived directly from linoleic acid. With this knowledge, control mechanisms required to prevent excessive synthesis of fatty acids in chloroplast now are being examined. Thus, this work now can explain the fatty acid biosynthetic pathways in the chloroplast and, thereby, assist in the further understanding of the biosynthetic potential of chloroplasts.

Stumpf graduated magna cum laude from Harvard University. He received his Ph.D. from Columbia University in 1945.

The author of approximately 150 articles in the lipid chemistry and biochemistry field, he is currently editor of *Journal of Phytochemistry and Analytical Biochemistry*.

Stumpf, who received a Guggenheim Fellowship twice, has served as a consultant to NIH and was a member of the Subcommittee on Nomenclature of Biochemistry of the National Research Council, serving as its chairman in 1961-63. He was elected to the Nominating Committee, American Society of Biological Chemists.

He is a member of the American Chemical Society, American Society of Biological Chemistry, American Society of Plant Physiologists, American Oil Chemists' Society, Biochemical Society of London, and Sigma Xi. ■