The Photopolymer Science and Technology Award

The Photopolymer Science and Technology Award No. 97200, was presented to Masayuki Kuzuya, Masami Sugito and Shin-ichi Kondo (Gifu Pharmaceutical University) for their outstanding contribution published in Journal of Photopolymer Science and Technology, 9(2), 261-264 (1996), entitled "Special Feature of Peroxy Radicals on Plasma-Irradiated Polymers".

Masayuki Kuzuya

Masayuki Kuzuya was born in Gifu, Japan in 1943. He graduated from Gifu Pharmaceutical University in 1965 and received his Ph. D in heterocyclic chemistry in 1970. Following postdoctoral research associate at Michigan State University (U.S.A.) for two and a half years, he joined the faculty at Gifu Pharmaceutical University in 1974, where he is now a professor of pharmaceutical physical chemistry.

Masami Sugito

Masami Sugito was born in Aichi, Japan in 1974. She graduated from Gifu Pharmaceutical University in 1996. She is now an assistant of pharmaceutical physical chemistry.

Shin-ichi Kondo

Shin-ichi Kondo was born in Aichi, Japan in 1965. He graduated from Gifu Pharmaceutical University in 1987 and received his Ph. D in 1991. He is now an assistant fellow of pharmaceutical physical chemistry.

In 1991, Professor Kuzuya started his novel research works on plasma chemistry which includes

elucidation of mechanistic study of plasma treatment and its pharmaceutical applications.

In view of the fact that surface reactions of plasma treatment are initiated by plasma-induced surface radicals, study of the resulting radicals is utmost importance for understanding of the nature of plasma treatment. Thus, he has undertaken plasma-irradiation of a wide variety of powdered polymers, synthetic and natural, and the radicals formed were studied by ESR coupled with the aid of systematic computer simulations.

All kinds of plasma-irradiated polymers are eventually exposed to air for their practical use so that studies of auto-oxidation process of such radicals are also important. Thus, he reported in-depth ESR studies of the nature of peroxy radical formation.

On the basis of the findings from a series of such studies, he developed several novel application works on plasma-irradiated organic polymers which include (1) preparations of functionalized multilayered tablet applicable for drug delivery system(DDS), (2) fabrication of functionalized composite powders derived from plasma-irradiation onto powdered polymers followed by pulverization together with drugs under anaerobic conditions, and (3) a novel method to introduce durable hydrophilic properties onto hydrophobic polymer surface.

He has published more than 120 scientific papers and several review articles. For his original studies on fundamentals of plasma treatment and its

application works to drug engineering in pharmaceutical science, he was awarded Miyata Scientific Prize from Pharmaceutical Society of Japan in 1995.

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