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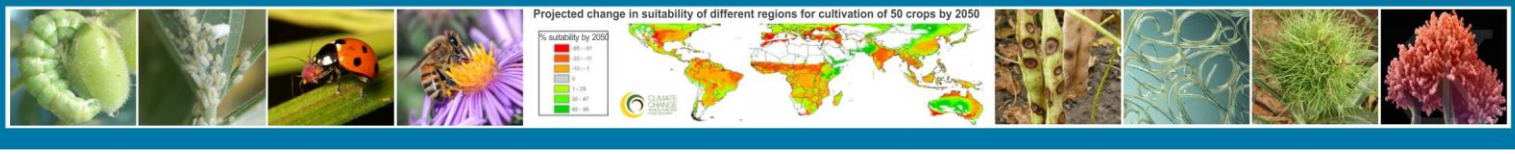
Biography – Prof. Noriharu Ken Umetsu

Prof. Umetsu received his Ph.D., Agricultural Chemistry, in 1974 from the Tohoku University, Japan. Originally an agricultural chemist with expertise in rice blast disease and its associated toxins. During 1974-1981, Dr. Umetsu was a postdoctoral trainee and visiting scientist in the University of California, Riverside, where he conducted research on the adverse effect of impurities existing in technical organophosphorus insecticides. He also worked on the design of new carbamate insecticides and succeeded in commercializing several products.

On returning to Japan, Dr. Umetsu continued his research on the development of commercial agrochemicals with Otsuka Chemical Co. During a 15-year period as research manager and head (Director on Board) of the Otsuka Agricultural Chemicals Division, Dr. Umetsu and his colleagues developed six new agrochemicals.

He is a member of many scientific societies such as the Pesticide Science Society of Japan (PSSJ) and the International Association for the Plant Protection Sciences (IAPPS). Dr. Umetsu was a President or Vice President of PSSJ for a total of six years, Member of the Governing Board of IAPPS (coordinator for Northeast Asia) and conference chair of the 3rd Pan-Pacific Conference of Pesticide Science held in Hawaii.

He served as a visiting professor of the Tokyo University of Agriculture and the Kobe University for many years and is currently a visiting professor of the Kibi International University and the East China University of Science and Technology. He is an Honorary Member of PSSJ. He currently works as an advisor to OAT Agrio CO., Ltd.



Presentation title: Trend in Pesticide Discovery Research -Development of Safer and Environmentally Friendly Pesticides

Abstract

The development and manufacture of effective, safe to human, and at the same time environmentally friendly pesticides have been a challenge to feed the growing population of our planet. Development of the pesticides possessing lower risk to natural enemies and useful organisms and compatible with IPM is also an important target. The presentation is an attempt to summarize the trends in research, development and commercialization of safer and environmentally friendly pesticides during the past decade.

In insecticide development, the trend is changing from organophosphorus, carbamate, synthetic pyrethroids to nicotinic insecticides (neonicotinoids) and diamides. Recently, compounds having a variety of novel mode of action that are not classified into existing insecticides are under development. Because of the growing social concern in the effect to honeybees, honeybee toxicity has become a new target for selective toxic insecticide.

In fungicide development, succinate dehydrogenase inhibitor (SDHI) fungicides are most common (more than 15 compounds) with sterol demethylation inhibitor (DMI) and quinone outside inhibitor (QoI) fungicides. However, due to resistance development against SDHI fungicides, Qi (quinone inside) inhibitor fungicides and many fungicides possessing novel mode of action are currently under development. Though many different herbicides possessing a mode of action such as acetolactate synthase (ALS), *p*-hydroxyphenylpyruvate (HPPD), protoporphyrinogen oxidase (PPO) and very long chain fatty acid elongase (VLCFAE) inhibition has been developed, no herbicides possessing novel mode of action have been commercialized for nearly past 30 years. It is of interest that cyclopyrimorate under development has reported in 2018 to possess novel mode of action, homogentisate solanesyl-transferase inhibition.

Development of useful acaricides, nematicides and biopesticides is also progressing. Some natural product origin pesticides have got attention.