IAPPS NEWSLETTER

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CALL FOR NOMINATIONS: INTERNATIONAL PLANT PROTECTION AWARD OF DISTINCTION (IPPAD)

The Governing Board of the International Association for the Plant Protection Sciences (IAPPS) has established the International Plant Protection Award of Distinction (IPPAD) to honor individuals, teams or organization which have made significant and innovative scientific contributions to plant protection on an international basis and who otherwise have served with distinction in advancing the cause of the plant protection sciences.

All members of IAPPS are invited to recommend candidates to the Governing Board members (see below list with e-mail addresses) for nomination by the GB member to the Award Committee.

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THE 25TH HONOKAI SYMPOSIUM
"PLANT PROTECTION HI-VISION - 2010"

Under the title "Development of biological pest control agents and the harmonization with chemical pesticides", the Honokai symposium was held in Tokyo, Japan on September 17, 2010. The symposium was organized by the Honokai Foundation, known for sponsoring students in plant protection related sciences in Japan. Six lectures were given in front of about 300 participants.

Subject 1: Recent Development of Biological Pesticides and Their Use and Future Scope by Tsutomu Saito (Faculty of Agriculture, Shizuoka University)
Biological pesticides are increasing in number worldwide, but in Japan the share remains flat, representing only 0.5% of total pesticide sale. They are considered to have unstable efficacy, difficulty to control vector insects of plant viruses, difficulty to control pests of ornamental plants, which require cosmetic appearance, resurgence of secondary pests, etc. Furthermore, most biological pesticides are introduced species, the introduction of which needs careful attention in advance.Prof. Tsutomu Saito discussed weak and strong points of chemical and biological pesticides and suggested niches for biological pesticides: control of resistant pests and use on non-crop land, plant factories, home gardens, etc. as well as in developing countries, where overuse of chemical pesticides causes serious problems.

Subject 2: The IPM Program using Natural Enemies by Satoshi Yamanaka (Development of IPM Project, Arysta LifeScience）
IPM programs involving natural enemies are effective for controlling pests by labor-saving and delaying pest resistance to insecticides, thus preserving the insecticides. To obtain a stable efficacy by using natural enemies in IPM program, it is important to develop the program which integrates physical, chemical and cultural controls, providing a spray calendar by which farmers can spray chemical pesticides without monitoring pest and natural enemy populations. The fundamentals of such IPM program are for predatory mites *Amblyseius swirskii* and *Neoseiulus californicus* to be established on plants integrated as they fit with other compatible control methods. This program is going to be popularized at protected fruit vegetable production (strawberry, egg plant, green pepper and cucumber). In addition, use of the entomopathogenic fungi such as *Verticillium lecanii* or *Beauveria bassiana* with conventional chemical insecticides has showed significant synergistic effect against resistant *Thrips palmi* Karny.

Subject 3: Sequential Treatment of Biological Pest Control Agents in Paddy Rice and Horticulture Fields and Development of Hybrid Pesticides by Kazuo Kumakura (Marketing Division, Kumiai Chemical Industry)
Until 1997, Japanese agrochemical industries had not seriously tackled to develop biological pesticides, because 1) the efficacy of those products were unsatisfactory, 2) the target pests were quite few, 3) the poor performance due to lack of stability, 4) rather expensive compared with the chemical pesticides and 5) complex regulatory mechanism. In 1997, Japanese MAFF issued a new guideline, and has promoted the biological pesticides under the policy that a farmer who applied less frequency of chemical pesticides is subsidized. In 2003, Kumiai Chemical commercialized a new product, "Eco-hope" , which contains a fungus *Trichoderma asperellum* in it. This agent acts on several rice seedling diseases such as *Gibberella fujikuroi, Magnaporthe grisea*, or

Burkholderia glumae, focusing on organic-oriented paddy rice. In 2007, further reseach elucidated the the mode of action of *T. asperellum* against *G. fujikuroi*, and recommendations were made to increase use efficacy. For vegetables and ornamental fields, *Bacillus subtilis* including product "Eco-shot" was launched in 2006 for control of plant diseases such as gray mold, leaf mold, and Japanese pear scab. A new concept product, "hybrid pesticide" will be launched in near future. One of these products is the mixture with "Eco-shot" and copper hydroxide, and a synergistic efficacy against gray mold and other fungi are expected.

Subject 4: Use of Natural Enemy Nematodes Steinernema carpocapsae for Control of Branch and Trunk Insects by Hiroshi Tanabe (Product Manager, SDS Biotech)
The entomopathogenic nematode *Steinernema carpocapsae* kills insect larvae by the proliferation of commensal bacteria present in its body. SDS Biotech commercialized this product named "Bio-safe" in 1993 for the control of branch and trunk insects which attack fruits or garden such as *Cossus insularis* on Japanese pear and apple, and *Synanthedon hector* on peach and nectarine. This nematode is quite tolerant to many chemical pesticides, and in some cases a synergistic action is observed by simultaneous application with neonicotinoids such as imidacloprid or thiamethoxam at much lower application amount for each single application. Further, it was reported in 2007 that the “Bio-safe” could control *Dyscerus perforatus* located in the underground part of olive stem, where chemical insecticide were inefficient.

Subject 5: Labor-saving Plant Disease Control Method by using a Dust Application of Bacillus subtilis by Shinichiro Ogawa (Agri-bio Business, Idemitsu Kosan)
Six wettable powder (WP) products containing *Bacillus subtilis* are registered in Japan to control mainly gray mold and powdery mildew on vegetables cultivated in greenhouse. Since the control mechanism of this microbial agent is the competitive action against the target fungi on surface of plant, the preventive application is inevitable. Moreover, *Bacillus subtilis* has not systemic action, thus a wide spread and even distribution of the fungus in the greenhouse is quite important. To obtain the stable efficacy and also a laborsaving on the occasion of spray application, a "duct application" was introduced. Namely, a *Bacillus subtilis* WP (Botkiller®) is dusted daily through ducts of hot-air heating system in greenhouse. Everyday a small amount of Botkiller (10~15 g/10a) is put into a duct. Unlikely conventional spray applications, the duct application does not require any water, so the humidity in greenhouse remains low and help keeping plant diseases in check. The example of the duct application of Botkiller WP in efficiently controlling tomato bacterial canker (*Clavibacter michiganensis* subsp. *michiganensis*) on tomatoes was published in 2008. Since this plant disease is extremely difficult to control, the result started to attract attention in Japan. However, it was evidenced that in case the density of plant pathogen increased, conventional chemical pesticides should be applied immediately to decrease the pressure of the fungi. So, the combination with chemical and biological pesticides applications is quite important. An automatic injection, laborsaving device will be commercialized in near future.

Subject 6: Promotion and Expansion of Biological Pesticides in Kanagawa Prefecture by Masanobu Kobayashi (Kanagawa Agricultural Technology Center)
Kanagawa Prefecture adjoins the highly urbanized Tokyo Metropolitan area. In accordance with the local government policy, environmental friendly agriculture has been strongly promoted, and biological pesticides have been recommended in many fields. Use of an acarine predator

(*Phytoseiulus persimilis*) started in 1995, and recently the combination with *Neoseiulus californicus* has allowed to obtained a stable efficacy. *Encarsia formosa* (a well known parasitoid of greenhouse whitefly) was introduced in 1996, and the usage increased since then. However, by introducing the Lano tape (containing pyriproxyfen) in 1997 and outbreak of Tomato Yellow Leaf Curl Virus (TYLCV) since 2005, the use of this natural enemy decreases drastically.
Nonpathogenic *Erwinia carotovora* subsp. *carotovora* (CGE234 M403) was registered in 1997 for control of soft rot, and the usage has increased in Japan. The duct application of Bacillus subtilis (see subject 5) is quite welcomed by many tomato farmers.
Many strawberry growers in Kanagawa have successfully introduced biological pesticides. The success of these biopesticides relies in the perseverance of several key persons who have tried to introduce biological pesticides eagerly without fear of failure, and finally they made a well-understandable manual for farmers.

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IAPPS Mission: to provide a global forum for the purpose of identifying, evaluating, integrating, and promoting plant protection concepts, technologies, and policies that are economically, environmentally, and socially acceptable.

It seeks to provide a global umbrella for the plant protection sciences to facilitate and promote the application of the Integrated Pest Management (IPM) approach to the world's crop and forest ecosystems.

Membership Information: IAPPS has four classes of membership (individual, affiliate, associate, and corporate) which are described in the IAPPS Web Site www.plantprotection.org.

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