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XIVth International Plant Protection Congress (IPPC) Jerusalem, Israel 1999

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The 14th International Plant Protection Congress (IPPC) was held in Jerusalem, Israel in July 1999. The theme chosen for the congress was “Plant Protection Toward the Third Millenium - Where Chemistry Meets Ecology”. This was to symbolize the need to incorporate in such a congress all aspects and approaches to pest control including biotechnology and environmentally compatible chemicals as well as non-chemical methods.

The Congress was held in the beautiful Jerusalem International Convention Center which provided excellent accommodations for such an assembly. More than 1200 scientists from 82 countries participated in the meeting and contributed to an exciting atmosphere and stimulating discussions.

Plant protection research has faced enormous changes in recent years, due to the following reasons: Rapid development of knowledge in biology (especially in physiology, biochemistry and molecular biology), increasing levels of pest resistance to pesticides, and increasingly stringent regulatory standards related to food safety and management of a safe environment. Thus, growing efforts are directed toward reduction of excessive use of pesticides which can be achieved by the introduction of more selective and environmentally compatible chemicals together with a large variety of non-chemical technologies. Integration of plant protection approaches for the benefit of agriculture and for minimizing adverse effects on the environment requires joint efforts by academic and government research institutions together with extension service personnel and farmers.

The scientific program was based on nine main topics and included plenary lectures, symposia, workshops and poster discussion sessions. The plenary lectures presented by world leading scientists, covered the major issues facing plant protection in modern agriculture, including IPM and its implementation, chemical control in sustainable farming, biotechnology, regulation and novel and safe targets of pesticides.

The issue of integrated pest management (IPM), dealing with strategies, technologies, implementation programs, achievements and failures related to the goals of IPM, namely, reducing pesticide use while maintaining and even improving food quality and farmer’s profitability. The subjects related to improvements of biological, cultural, mechanical, physical and chemical methods were discussed. Scientists from different regions of the globe described successes as well as failures in the implementation of IPM programs

worldwide. It was evident that IPM programs are implemented in many countries and becoming an integral part of farmer’s practices. It was also evident that many questions remained to be answered.

Microbial pesticides are potential tools for the control of arthropods, pathogens, nematodes and weeds, especially in places where IPM is implemented. Several successes such as *Bacillus thuringiensis* (BT) against insects, entomopathogenic nematodes against insects, fungi such as *Trichoderma* against soil and foliar diseases, fungi and bacteria for the control of noxious weeds, etc. The potential of microbial pesticides in agriculture, the need to improve formulations, effectiveness and production problems were discussed. A major question was why bio-control agents are not used on a larger scale?

Innovative approaches in pesticide chemistry and chemical ecology were also discussed. Pesticides are still the major tools to achieve proper and economical pest control in agriculture. However, major thrusts are underway to develop more selective means of pest control which are compatible with biological, toxicological, environmental and societal requirements. Much effort is being devoted to the development of more target-oriented pesticides. Research on the development of new pesticides is based on new screening methods such as high throughput and on sound understanding of novel target sites and pharmacological principles with the objective of developing more environmentally friendly and target-selective pesticides. Subjects that were discussed included the discovery and understanding of novel targets such as selective receptors in insects (mainly in the nerve system) as well as new sites of herbicides and fungicides.

Other subjects discussed related to natural products, chemicals isolated from plants and microorganisms, as sources for new selective pesticides or as leads for new mechanisms of action. Another important topic is connected with the identification and application of sex pheromones and other chemical attractants, which play an important role in insect communication. Sex pheromones are being incorporated as an important component in IPM programs. They are being used either for monitoring

purposes or for insect control through mass trapping or mating disruption. Effort is being devoted to the role of plant volatiles s in communication between insects and their natural enemies.

Molecular biology and genetic engineering in plant protection is becoming in recent years a key component in this field. Transgenic crops resistant to herbicides were developed and are available to the farmer. Transgenic crops resistant to pathogens, insects, and mites were developed as well as microbial pesticides

Another important issue is resistance of pests to pesticides. Several sessions focused on the molecular basis for resistance, cross resistance, prediction, detection and management of pesticide resistance. Other topics were regulation, harmonization of regulatory activities in plant protection, issues facing the regulatory community in regard to genetically modified organisms and transgenic crops. Eco-toxicology and fate of pesticides in the environment as well as the issue of risk assessment were also addressed.

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

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