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Application Of Semiochemical Releasers And Intercropping To Control Aphid And Related Virus In East China

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Nowadays, the control of aphids - well known virus vectors, lies on the use of synthetic insecticides. The chemicals' harmful effects on the environment and on human health led to some research aiming at the development of new alternative methods that would be efficient for producers. Within this context of biological control against aphids and their virus transmission, semiochemical substances (pheromone and allelochemicals) and the intercropping are strategies increasingly studied. The properties of the semiochemical molecules were used to implement 'push-pull' techniques to repel pests and attract beneficial insects. Intercropping was applied as an attractive strategy for managing pests and viruses through the release of allelochemicals or by associating plants in intercropping. In this study, three semiochemical substances namely (E)-β-farnesene (EBF), cis-3-hexenyl acetate, garlic extract and peas intercropping were separately tested. Yellow traps were used and complemented by visual observation in the potato field plots corresponding to each kind of treatments. The evaluation of the abundance and diversity of aphids was performed weekly by collecting insects in fields and indentifying in the laboratory. The presence of viruses (Potato virus Y (PVY) and Potato Leaf Roll Virus (PLRV)) and the proportion of infected plants in each plot were evaluated by enzyme-linked immunosorbent assays (ELISA). Between the different treatments, the cultural association presented higher repulsive effects than the released semiochemical molecules. Investigated strategies to control aphid and related virus were discussed in terms of efficacy and perspectives of application in larger scale for sustainable crop production.

Keyword : *Aphid, Integrated Pest Management, Biological control*