49P Evaluation of side-effects of the Microbial Pest Control Product FUTURECO NOFLY™ (*Paecilomyces fumosoroseus* strain FE 9901) to several natural enemies in the Canary Islands

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A new Microbial Pest Control Product (FUTURECO NOFLY™ based on *Paecilomyces fumosoroseus* strain FE 9901) has been successfully tested in the Canary Islands for controlling *Bemisia tabaci* (Genn.) and *Trialeurodes vaporariorum* (Westwood). The product is seen as a promising tool in organic or integrated production systems.

The suitability of this product for IPM programs was tested by studying its side-effects on several beneficial species used in the Canary Islands, in laboratory and extended-laboratory tests. The results on *Encarsia formosa* Gahan and *Orius laevigatus* Fieber (Hemiptera: Anthocoridae) are presented. Evaluation was based on the IOBC/OILB guidelines to evaluate side effects of plant protection products on non target species, and EPA guidelines OPPTS 885.4530, OPPTS 885.001.

The direct mortality and reduction in parasitism of *E. formosa* adults after exposure to fresh residues of the product was assessed under laboratory conditions. Cypermethrin and tap water were used as positive and negative controls respectively. The susceptibility of *O. laevigatus* first and fourth stage nymphs was evaluated under laboratory conditions and in a semi-field test on tomato plant, using deltamethrin as positive control, pyriproxyfen as selective toxic and tap water as control. The product was applied at 0.5-1x10^5 CFU/cm^2 leaf (equivalent to 0.5-1x10^{13} CFU/Ha, the commercial rate).

FUTURECO NOFLY™ proved to be harmless to adults of *E. formosa* when applied at its recommended commercial dosage under laboratory conditions. The N1 and N4 nymphs of *O. laevigatus* were affected by the formulation but a further semi-field test showed no effects on nymphs, which demonstrated that the product poses an acceptable risk for this non-target species.

The methods described by the IOBC guidelines designed for conventional chemical plant protection products are not fully suitable to determine the side-effects of microbial plant protection products. However, it was considered that sufficient information was generated to address the risk to these natural non target arthropods populations in terms of host specificity and growth conditions.

Keywords: *Paecilomyces fumosoroseus*, whitefly, IPM, *Encarsia*, *Orius*.