

**EFFICACY OF *BACILLUS THURINGIENSIS* TO CONTROL THE OLIVE MOTH,
PRAYS OLEAE (BERN.) AND SIDE EFFECTS ON THE OLIVE TREE
ARTHROPODOFAUNA**

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The olive moth, *Prays oleae* (Bern.), is considered one of the most important insect pests of the olive agroecosystem in the Mediterranean basin. The larvae of this insect feed on the leaves, flowers and fruits of the olive tree, and in some olive producing areas, such as the northeast region of Portugal, can cause severe damage in olive groves. Sprays of *Bacillus thuringiensis* Berliner preparations are, presently, the only direct or suppressive strategy of protection allowed against this pest in ecological olive production. Therefore, a study was carried out during 2002, in an grove located near Mirandela (northeast of Portugal), in order to evaluate the efficacy of such sprays to control *P. oleae* and to investigate their side effects on the olive trees arthropods. The grove, with a surface of about 6 ha, was divided into two plots. One was sprayed with *B. thuringiensis* ssp. *kurstaki* (Dipel, Bayer Crop Science), when 10% of the flowers were open (May 31st), while the other was used as the control. The efficacy of the treatment was evaluated by counting the percentage of attacked fruits on samples of 25 fruits from each of 10 random selected trees per plot. In addition the number of male catches on delta pheromone traps (INRA, Antibes-France), was compared. To evaluate the side effects of the treatment on the arthropods, 50 branches were beaten per plot, weekly, from May 29th to July 16th on a weekly basis. The number of adults captured in the traps was significantly lower in the *B. thuringiensis* plot (364,67 catches/trap) than in the control plot (775,67 catches/tree) ($df= 5$; $F= 7.7086$; $P = 0.0025$). Also, the percentage of attacked fruits was significantly lower ($P < 0.001$) in the treated plot than the control, ranging from 31.2 to 33.6% in the first case and from 14 to 14.4%, in the second. The number of Coccinellidae and Psocoptera captured, were significantly high ($P = 0,01$) in the control, while that of Formicidae were significantly high ($P < 0.001$) in the treated plot. The number of captures of the remaining groups (Araneae, Neuroptera, Heteroptera, Hymenoptera wasps, Acari, Diptera, Thysanoptera, Homoptera and others Coleoptera) was not significantly different between plots.

Key-words: *Bacillus thuringiensis*, *Prays oleae*; olive tree arthropods, side effects; ecological olive production

This work was partially financed by the project AGRO 236 "Proteccao contra pragas em Olivicultura biológica"