

## Effects of different attractive sources on the abundance of Hymenoptera and possible enhancement of their activity on *Prays oleae* Bern

Bento, A.<sup>1</sup>; Cabanas, J.E.<sup>1</sup>; Pereira, J.A.<sup>1</sup>; Torres, L.M.<sup>2</sup>; Herz, A.<sup>3</sup> & Hassan, S.A.<sup>3</sup>

<sup>1</sup>Escola Superior Agrária de Bragança, CIMO, Quinta de Sta. Apolónia, Apartado 172, 5300-855 Bragança (Portugal), Tl. (351) 273 303392, Fax (351) 273 325405, bento@ipb.pt

<sup>2</sup>Universidade de Trás-os-Montes e Alto Douro, Quinta Prados, Apartado 202, 5000-911 Vila Real (Portugal), ltorres@utad.pt

<sup>3</sup>Federal Biological Research Centre for Agriculture and Forestry, 64287 Darmstadt (Germany)

Beneficial arthropods belonging to the Hymenoptera form an important part of the natural enemy complex in olive grove ecosystems. Ants are important general predators, and the Hymenopteran parasitoids have a principal role in the biological control of olive pests, for instance the olive moth, *Prays oleae* Bern. The objectives of this work were to evaluate a potential enhancement of these beneficials in terms of abundance and activity on different development stages of *P. oleae* by offering different attractive sources in an ecological olive grove. The experimental work was done in 2003 in an olive grove of about 80 years located near Mirandela (Northeast of Portugal). Several different attractive sources (sugars, yeast autolysate, acid-hydrolyzed L-tryptophan, hydrolyzed protein, honey) - alone or in combination - were applied in eleven treatments. The sources were sprayed in two consecutive rows of trees on the interior side of the tree covering half of the canopy. The experiments were done at two times: the first was carried out on April 22<sup>nd</sup> in coincidence with the flower generation of the olive moth; the second was done on June 3<sup>rd</sup> in coincidence with the fruit generation. In this second experiment, only the most promising treatments were applied (5 in total). Abundance of Hymenoptera in the different treatment plots was determined 3, 7 and 15 days after spraying by the beating technique. Parasitism on *P. oleae* eggs was evaluated by inspecting samples of flower clusters or fruits from 15 trees per treatment. The number of vital, hatched, parasitized, predated and dead eggs was counted. Parasitism rates on larvae and pupae were estimated by collecting and subsequently rearing of samples in the different treatments. The data were analyzed by ANOVA following by Tukey multiple range test. More than 2200 of the collected specimens belonged to the order Hymenoptera. About 70% of them were Formicidae and the others were Hymenopteran parasitoids, especially *Braconidae* and *Encyrtidae*. A combination of sugar, yeast autolysate and acid-hydrolyzed L-tryptophan was significantly more attractive to the Hymenopteran parasitoids than the all other treatments. The larval parasitoids *Ageniaspis fuscicollis* and *Elasmus flabellatus* were the most abundant and frequent parasitoid species.

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