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Dispersal and field progeny production of released *Trichogramma* species in an olive grove, in Egypt

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ispersal and field progeny production of egg parasitoids released for biological control are essential factors for their spatial and population dynamics. The movement behaviour and relative progeny production of three indigenous Trichogramma species to olive farms in Egypt (Trichogramma bourarachae Pintureau and Babault, T. cordubensis Vargas and Cabello, T. euproctidis Girault) was compared with the commercially available T. evanescens Westwood, originating from sugarcane fields in Egypt. Five separate weekly releases were conducted on four olive tree patches of the same variety, age, shape and height and 250 m far from each other during good weather, absence of both wild population of Trichogramma and lepidopterous olive pests. The study was verified by monitoring sentinel eggs (Sitotroga cerealella) exposed to parasitism in plastic cages running through the canopy of intra- and inter-trees of 10-12 m far. All wasp species achieved highest parasitism on the tree where they had been initially released. However, parasitism significantly declined on sentinel eggs fastened on the adjacent trees. The decline in parasitization rates was species-dependent. Indigenous species accomplished higher parasitization than the commercial one. The four species of parasitoids exhibited different horizontal and vertical distribution pattern. The cardinal direction of dispersal seems to be random. For all test wasps, significantly greater parasitism occurred on sentinel eggs on the middle portion of tree canopy. Progeny production was highest for T. bourarachae, followed by T. euproctidis and then T. cordubensis. T. evanescens propagated less under field conditions. T. bourarachae spread to a greater extent than the other egg parasitoid species. Native egg parasitoid species were more productive in the field than the commercial species. Dispersal of all species except T. bourarachae was quite restricted and, for biological control, releasing material should therefore be distributed on each olive tree, preferably also at different levels of the canopy.

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