POTENTIAL OF PARASITOIDS FOR THE CONTROL OF CABBAGE MOTH IN AUGMENTATIVE RELEASES

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DECLARATION

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ABSTRACT

Cabbage moth (*Plutella xylostella* L.) is a serious insect pest on brassicas in many parts of the world. Studies of two larval parasitoids, *Cotesia plutellae* Kurdjumov and *Diadegma semiclausum* Hellen, were conducted to assess their potential for the control of this pest. In the laboratory, rates of parasitism by these parasitoids varied at various wasp densities for each host instar, where they preferred bigger hosts to lay eggs. Their searching efficiency decreased with increasing parasitoid densities, but their killing capacity and encounters increased at higher wasp densities for each instar. Within the temperature range of 15 ^{o}C to 35 ^{o}C, the lower the temperature, the longer was the developmental time and aging rate. Also, at low temperatures they developed slowly. The parasitoid *C. plutellae* was most active at the warmer temperature (range 20 ^{o}C to 35 ^{o}C), whereas *D. semiclausum* was most active at cooler temperatures (15 ^{o}C to 25 ^{o}C). Self-superparasitism by these wasps was the lowest at low temperatures and on the first instar. In glasshouse experiments, both parasitoids laid more eggs in the evening when released at a higher density. The temperature threshold of female *C. plutellae* was 3.6 ^{o}C. Field releases of 10 and 20 female *C. plutellae* produced the average of 23.4% and 43.7% parasitism, respectively. Superparasitism by this wasp occurred in very low rates, i.e. 0.9% and 2.27% for 10 and 20 released female wasp, respectively.

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