

Mating versus oviposition in *Diaeretiella rapae* (Hymenoptera: Aphidiidae)

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Reproductive fitness of a haplo-diploid parasitoid depends on its mating and oviposition success. Oviposition by virgin females produces all-male offspring, while mated females produce both male and female depending upon the environmental condition. Whether oviposition occurs before or after mating, may affect the reproductive fitness of parasitoid, as unmated females may lose fitness by producing more males than required. This study assessed mating vs. oviposition preference in *Diaeretiella rapae*, a solitary endoparasitoid of cabbage aphid (*Brevicoryne brassicae*), and its importance in reproductive fitness gain. In *D. rapae* females emerge after males, and can choose whether to mate or to oviposit first. About a two-thirds of *D. rapae* females preferred to mate before oviposition in a mating/oviposition choice test. The females who oviposited first, parasitised only 10% of the aphids available in the arena before mating. The mean number of aphid nymphs parasitised, and the parasitism rate per unit time were significantly greater when oviposition occurred after mating, compared to the oviposition before mating. Mated females of *D. rapae* self-superparasitised their host aphids with fertilised eggs which resulted in a highly female-biased sex ratio of the offspring.

