

**Project Title:** Evaluation of food resources, host availability and pesticide impacts on the efficiency of aphid parasitoid *Diaeretiellarapae* (M'Intosh) (Hymenoptera: Braconidae)

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Approximately 45% worldwide consumption of pesticides is in Europe alone, 25% is consumed in the USA, and 30% in the rest of the world. The use of pesticides may pose a serious threat to soil and water quality, human health, food safety, aquatic species and beneficial insects. Biological control still considered as effective component of integrated management of insect pests if applied efficiently. Biological control has three general approaches i.e., importation, augmentation and conservation. Conservation of natural enemies is a critical basic need of conservation methods under field conditions and may enhance or limit the efficiency of a particular natural enemy of herbivorous insect pests. It is assumed that extra sources of carbohydrate food could enhance the fecundity of female parasitoids. It could depend on host and food availability, mating and rate of survival of females. The experiment was performed on aphid parasitoid *Diaeretiella rapae* to evaluate the impact of host and other food resources on parasitoid's fecundity, survival and efficiency. The effect of different insecticides [Advantage® 20 EC (Carbosulfan), Imidacloprid, Polo® 500 SC (Difenthiuron) and Match® 0.50 EC (Lufenuron)] was also evaluated in the laboratory. It was observed that females fed on aphid honeydew; this diet appears to be of poor quality as compared to other sugar sources like honey and sugar solution. Second one has apparent positive impact of mating on monogenesis. The negative impact was observed on oviposition activity on female reared in laboratory as less number of mature eggs was observed in the laboratory reared females than field collected parasitoid females. All insecticides demonstrated dose dependent mortality of *D. rapae*. Conclusively, food and host availability as well as insecticides affect the efficiency of *D. rapae*. This could lead to hypothesis that *D. rapae* females die in field after having infested only few aphid hosts.