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Karimoune, Laouali Ba, Malick Niango Baoua, Ibrahim B. and Muniappan, Rangaswamy 2018. The parasitoid Trichogrammatatoidea armigera Nagaraja (Hymenoptera: Trichogrammatidae)
The effect of host nutritional quality on multiple components of Trichogramma brassicae fitness

- H. Kishani Farahani (a1), A. Ashouri (a1), A. Zibaee (a2), P. Abroon (a1), and L. Alford (a3)...

  - https://doi.org/10.1017/S000748531600033X
Abstract

For parasitoids, the host represents the sole source of nutrients for the developing immature. Subsequently, host quality is an important factor affecting immature development and the resulting fitness of the emerging parasitoid, with impacts on fecundity, longevity and offspring sex ratio. Host age is an integral component of host quality and a key factor in host selection by the female parasitoid. The current study aimed to investigate the effect of decreasing host quality (determined by increasing host age) on adult life history traits (size, wing loading, longevity, and fecundity) and nutritional reserves (protein, lipid and glycogen concentrations) of the parasitoid Trichogramma brassicae. Higher quality hosts resulted in the production of larger offspring with increased resource reserves and enhanced mobility. One-day-old eggs contained significantly more protein and triglyceride than 25- and 45–day-old eggs. Quality of host and fitness of reared wasps decreased due to host aging. Parasitoids reared on 1-day-old hosts were larger, with greater fecundity and longevity, a reduced wind loading index, and produced a higher proportion of female offspring when compared with those reared on 25- and 45-day-old hosts. In addition, wasps reared on 1-day-old hosts contained higher energy resources, as determined by triglyceride, glycogen and protein reserves, which are essential to successful offspring production. One-day-old hosts can therefore be considered as the best age for producing wasps with greater fitness, since they contain the highest amount of protein, glycogen, and triglyceride. This has implications for the mass rearing of T. brassicae and enhancing the efficacy of this biological control agent.

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