Bio control:: Mass production::Parasitoids

Mass production of *Bracon brevicornis*

- *B. brrvicornis* is an important gregarious larval ecto-parasitoid of many lepidopterans.
- It is widely distributed and recorded from *Antigastra catalaunalis*, *Adisura atkinsoni*, *Earias* sp., *Helicoverpa armigera*,*Noorda moringae*, *Opisina arenosella*, *Pectinophora gossypiella*, *Chilo partellus* etc.,
- Its natural parasitism is not very high.
- However, it paralyses many lepidopteran larvae and some of them never revive. This contributes to indirect control.

Production procedure

- *B. brevicornis* is amenable for mass rearing in the laboratory on the alternate host, *Corcyra cephalonica*. For small scale culture, glass chimney and the 'Sandwich' technique are adequate.
- About 20 mated females are confined in a glass chimney, covering both sides of the chimney with muslin sheet held in place with rubber bands.
- A cotton swab soaked in 50% honey water solution is stuck to the side of the chimney to serve as food. With many hymenoptera, adult nutrition is of great importance as it influences sex-ratio.
- High protein diet at times improves the sex ratio so that more female progeny are produced. 'Proteinex' can be used to produce the desired results.
- Replacing honey with laevulose or fructose also is beneficial in some cases. Exposure to sunlight frequently stimulates mating, oogenesis and fertilization of eggs.
- About 10 full grown larvae of *Corcyra* are placed between two sheets of facial tissue paper and placed over the muslin sheet covering the wider mouth of the chimney.
- The tissue is again covered with a sheet of muslin and fastened with a pair of rubber bands.
- The chimney is then placed with the host larvae facing a window or light source. Females of *B. brevicornis* are attracted to the host larvae, probe through the muslin and paralyze the larvae on each of which they lay about 25 eggs per day.
- At the end of 24 hours, the tissue sheets bearing parasitized larvae are removed and held in flat plastic containers until the parasitoid grubs hatch, complete development and spin cocoons.
- The egg, larval pupal and adult stages are completed in 28-36 hours, 4-7, 3-6 and 15-40 days respectively.
- The female parasitoid is capable of depositing 150-200 eggs in its life time. Emerging adults are again collected for mating and egg laying.
- Adults survive up to 15-40 days but egg laying usually tapers off after the first ten days. Two day old adults of *B. brevicornis*could be stored for 30 days at 50C and 50-60% RH.

Bracon brevicornis