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Abstract: The investigations on biology and productivity-linked parameters of lac insect on pigeonpea and its natural enemies were carried out in the lac insect gene bank cum garden situated at Department of Entomology, Rajasthan College of Agriculture, MPUAT, Udaipur during 2016 with an aim to study the biological parameters viz., duration of pre-sexual stages (days), duration of male emergence (days), sex ratio (per cent male insect) and life period of female lac insect (days) on pigeonpea, to evaluate the productivity-linked parameters viz., initial and final density of settlement (crawlers per sq.cm), initial mortality (%), density at crop maturity (number of female cells per sq.cm), fecundity (larvae per female cell), weight of female cell and resin (mg) and yield (g) of lac insect and to record the natural enemies (parasitoids and predators) of lac insect. The mean duration of pre-sexual stages lasts 48.36 days from the inoculation of broodlac with 11.50 days mean duration of male emergence and 11.33, 7.33, 4.02; 17.75, 10.63, 6.23 and 17.75, 11.73, 11.56 per cent male in lower, middle and upper portion of plant in three set of experiment respectively. The total life period of Rangeeni strain of lac insect in Katki crop season on pigeonpea recorded 117 days. The initial density of settlement of first instar crawlers on a plant varied in different parts of plant which ranged from 20-121 crawlers per sq.cm and with a mean initial density of settlement of 92.60, 84.10, 60.00; 86.70, 91.60, 71.00 and 67.40, 64.70, 61.00 crawlers per sq.cm at lower, middle and upper parts of plants in three set of experiment respectively and the per cent mortality ranged from 6.46-12.58 per cent. The mean final density of settlement first instar crawlers ranged from 17-114 crawlers per sq.cm with mean of 85.50, 78.20, 53.10; 80.20, 85.90, 65.00 and 61.90, 57.30, 54.60 crawlers sq.cm on lower, middle and upper portion of plant in three set of experiment respectively. The density of female cells during maturity ranged from 01-11 cells per sq.cm and the fecundity recorded for single female cell was 95-430 larvae per cell. The cell and resin weight ranged from 6-24 mg per cell, 4-19 mg per cell, respectively while mean sticklac and scrappedlac yield recorded were 235g per plant, 15.63 g per plant respectively. The three species of hymenopteran parasitoids viz., *Erencyrtus dewitzi* Mahd, *Tachardiaephagus tachardiaie* Howard and *Aprostocetus (Tetrastichus) purpureus* Cameron contributed 97.77 per cent to the total natural enemies population whereas two species of lepidopteran and one species of coleopteran predators viz., *Eublemma amabilis*, *Pseudohypatopa (Holcocera) pulverea* Meyr and *Oryzaephilus* spp contributed 0.70, 0.28 and 1.26 per cent to the total natural enemies population respectively.

Description: Biology and Productivity-linked Parameters of Lac Insect on Pigeonpea and its Natural Enemies

Subject: Entomology

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