Biological studies on some predaceous Mites

Ibrahim Abd El-Semieh Ibrahim

Integrated pest management is considered the best method for pest control. This backage of control measures includes using of biotic and abiotic factors to obtain the best yield in quality and quantity without or with the least degree of pollution. Thus the aim of the present study was to investigate the role of the acarine predators in controlling phytophagous mitesBiological studies on the aerial mesostigmatid predatory mites Typhlodronius athiasae (Porath & Swirski), Phytoseius plumifer (Canestrini & Fanzago) (Family: Phytoseiidae) and Agistemus ?xsertus Gonzalez (Family: Stigmaeidae) were undertaken in the laboratory at different temperatures and food kinds and types (mites and pollen). The obtained results are summarized as follows:1-Motile stages of T urticae was the most favourable diet for the predator mite T. athiasae (21.0 and 19.7days for female and male at 18°C., 6.5 and 5.5 days at 25°C., 5.2 and 4.0 days at 30°C.,4.8 and 3.6 days at 35°C.). Also the males emergency were earlier than females.2-As temperature increased from 18 ,25, 30,35°C, the life cycle duration as well as female longevity and fecundity ranged from 24.3 &. 57.1 days and 18.6 eggs, 8.4 & 40.5 days and 26.4 eggs, 6.7 & 21.8 days and 44.9 eggs; and 5.8 & 20.1 days and 36.0 eggs, respectively. Adult female devoured an average ranged from 130.2 , 210.3, 276.5 and 196.8 T urticae immatures at 18, 25, 30°C and 35°C respectively. Thus, 30°C was most suitable degree for development of T. athiasae while 35°C wasleast suitable.3-Fecundity and longevity (both female and male) were highest at 30°C. and lowest at 35°C.4-Statistical analysis showed that, there were significant effects on duration of the longevity under different temperatures and diets between the diet (D1) and the diet (D3), the diet (D2) and the diet (D3), but there were no significant differences between the diet (D1) and the diet (D2) at 18, 25, 30 and 35°C.5-Relative humidity of 70 % at 30°C shortened life cycle (6.7 days) and increased female fecundity (44.9 eggs/female/17.3 days) .6-For food attractancy that affect predator, the different foods; T urticae (adults, immatures and eggs), T. cucurbitacearum (adults, immatures and eggs) and date palm pollen were ’tested against predator females fed and starved for 24 and 48 hours. More advanced stage gave better attractancy than younger; also fed female was better than 24 hours starved and the latter better than 48 hours starved female. T. urticae (adult. IS %; immatures, 15%; eggs, 10 %) gave the greatest attractancy percentage (40 %) and the shortest time (6.5, 8.5 & 11.3 minutes, respectively) for fed female, (8.2,10.0 and 13.8 minutes) and (11.2, 9.3 and 14.5 minutes) and attractancy percentage (25%) for T cucurbitacearum (16.5, 20.5 & 26.0), (20.5, 22.5 and 39.0 minutes) and (23.0, 25.0 and 56.0 minutes) starved for 24 and 48 hours, respectively. While the date palm pollen gave the smallest attractancy percentage (18 %) and the longest time 58.4, 66.3 and 73.2 minutes for femals fed andstarved for 24 and 48 hours respectively.7- Low temperature of 5 ± 1°C and 10 ± 1°C increased egg incubation period as cold storage preceded. Generally, total hatchability percentage decreased’ with increase of cold storage from 1 to 4 weeks with less percentage at 5°C. After 2 weeks only 66 & 49 % of eggs hatched at 10 % and 5°C, respectively, outside cold storage while rest of the percentage hatched during cold storage. or died. Thus eggs had to be stored not more than two weeks. At 10 and 5°C, female survivability and fecundity ranged from 88 & 84 % and 15 & 11 eggs/10 days after one week to 26 & 0% and 8 & 0 eggs after 4 weeks, respectively. After 3 weeks of cold storage at 10°C, 61 % of females survived giving an average of 9 eggs/female/10 clays. Females proved to be better stored than eggs.8- P. plumifer was found to be affected by the type of applied diet as follows: at 30°C., motile stages of T urticae followed by immature stages T cucurbitacearum were more favourable diets (6.4 and 6.6 days) and (5.2 and 4.6 days) for female

and male than the palm pollen grains (20.0 and 18.7 days) was less favourable diets.more suitable palm pollen. Also, motile stages of T urticae were better than eggs and adults at 30°C, gave the highest fecundity (57.5 eggs during the first 33.8 days of oviposition).9- As temperature increased from 18, 25, 30 then 35°C, the life cycle duration as well as female longevity and fecundity ranged from 30.5 & 99.7 days and 19.1 eggs, 9.6 & 57.2 days 37.7eggs, 7.9 & 41.4 days and 57.5 eggs and 7.1 & 33.2 days and 49.00 eggs, respectively.