CONTENTS

Summary

A) Survay and ecological study:

In this study, 47 mite species were collected belonging to 24 genera and 6 families from different localities and habitats, the collected mite species are:

Family: Cheyletidae

Includes 14 mite species belong to 7 genera.

Cheyletus ornatus, Hemicheyletia congensis, Acaropsellina docta, Acaropsella notchi, Cheyletus eruditus, Cheyletus malaccensis, Cheyletus malayensis, Cheyletomorpha lapidopterorum, Hemicheyletia bakeri, Acaropsis soller, Cheyletus balaghi, Cheyletus fortis, Cheyletus zaheri and *Mexecheles hawaiiensis.*

Family: Bdellidae

Includes 7 mite species belong to 4 genera.

Bdella longicornis, Bdellodes sp., Cyta coerulipes, Spinibdella reducta, spinibdella bifurcate, Spinibdella cortices and *Cyta latirostris.*

Family: Cunaxidae

Includes 10 mite species belong to 6 genera.

Cunaxa sitirostris, Pulaeus glebulentus, Cunaxa capreolus, Coleoscirus buartus, Coleoscirus tuberculatus, Neocunaxoides anderi, Neocunaxoides zaherii, Scirulas sp., Pulaeus zaheri and *Dactyloscirus sp.*

Family: Raphignathidae

Includes 6 mite species belong to one genus.

Raphignathus aegupticus, R. ehari, R. gracilis, R. bakeri, R. evansi and *R. sayedi.*

Family: Stigmaeidae

Includes 5 mite species belong to 3 genera.

Agistemus exsertus, Apostigmaeus navicella, Stigmaeus africanus, Stigmaeus zaheri and *Apostigmaeus aegyptacus.*

Family: Tydeidae

Includes 5 mite species belong to 3 genera.

Pronematus ubiquitus, P. rykei, Orthotydeus kochi, Tydeus aegyptiaca and *Pronematus sp.*

B) Biological studie

This part aimed to investigate the biological parameters of the predaceous mite *Dactyloscirus sp*. when experimentally fed on free living nematode, immature stages of Collembola and acarid mite *Tyrophagous putrescentiae* at 25, 30°C and 70% RH. The results revealed the following:

1. There is no Tritonymphal stage in males life cycle it passed through three immature stage only then adult stage.
2. Life span be shorter at 30°C than in 25°C.
3. Life span in female longer than in male under all condition.

I- When *Dactyloscirus sp*. feed on Acarid mite *Tyrophagous* putrescentiae at 25°C and 70% RH.

(1). Female incubation period be 4.98 but in male be 3.98 days.

(2). Larval stage lasted 4.35, 3.19 days for female and male, respectively

(3). Protonymphal stage lasted 4.29, 3.15 days for female and male respectively.

(4). Deutonymphal stage consumed 4.23, 3.2 days for female and male respectively.

(5). For female, Tritonymphal stage take 3.79 days.

(6). Life cycle for female be 21.64 but in male be 13.52 days.

(7) Preoviposition, oviposition and postoviposition period lasted in this temperature 4.34, 26.2 and 5.66, respectively.

(8) Longevity lasted for female 36.2 and 27.16 days for male.

(9) Life span in female longer than male which be 57.84 but in male be 40.68 days only.

(10) Fecundity in female 54.93 eggs.

- **Rearing at 30°C and 70% RH**

(1). Female incubation period lasted 3.43 days but in male be 4.57 days.

(2). Larval stage lasted 3.30, 3.76 days for female and male, respectively

(3). Protonymphal stage lasted 3.15, 3.65 days for female and male respectively.

(4). Deutonymphal stage consumed 3.58, 3.51 days for female and male respectively.

(5). For female, Tritonymphal stage take 3.59 days.

(6). Life cycle for female be 17.41 but in male be 15.49 days.

(7). Preoviposition, oviposition and postoviposition period lasted in these temperatures 3.15, 22.33 and 4.09, respectively.

(8). Longevity lasted for female 29.63 and 16.85 days for male.

(9). Life span in female 47.04 but in male 32.34 days

(10). Fecundity in female 42.81 eggs.

II- When *Dactyloscirus sp.* feed on free living nematode at 25, 30°C and 70% RH.

(1) Incubation period for female lasted 4.81 and 3.62 days at 25, 30°C and 70% RH. Respectively but in male be 3.16, 3.64 days in the same condition.

(2) Larval stage lasted for female 4.53, 3.68, so in male be 3.43, 3.35 days.

(3) Protonymphal stage lasted for female 4.75, 3.85 days but in male de 3.52 and 3.66 days at 25, 30°C, respectively.

(4) Deutonymphal stage lasted 4.58, 3.76 days for female and 3.50, 3.55 for male at 25 and 30°C respectively.

(5) Tritonymphal stage lasted for female only 4.54 and 4.26 days at the same condition.

(6) Life cycle consumed 23.21, 19.17 days for female and 13.61, 14.2 days for male.

(7) Preoviposition, oviposition, postoviposition periods lasted at 25°C 3.18, 24.08 and 3.52, respectively. Also at 30°C be 2.62, 20.06, 2.62 days.

(8) Longevity period lasted 30.78 and 25.30 days for female and for male lasted 28.72 and 21.46 days for 25, 30°C, respectively.

(9) Life span for female was 53.99, 44.47 days but in male 42.33 and 35.66 days.

(10) Fecundity be lower at 30°C than 25°C which be 37.25, 48.38 eggs respectively.

III- When *Dactyloscirus sp*. fed on immature stages of Collembola at 25° and 30° C.

(1). Incubation period lasted 4.67, 3.72 days for female and 3.27, 3.12 days for male at 25° and 30º C.

(2). Larval stage takes 4.26, 3.47 days for female and 3.45, 3.05 for males at 25° and 30º C.

(3). Female protonymphal stage consumed 4.9, 3.14 days and foe male 3.4, 3.7 days at same condition.

(4). Deutonumphal stage takes 4.61, 3.2 days for female and male at 25°C., respectively. However, in 30ºC takes 3.03, 3.51 for female and male.

(5). Tritonymphal stage for female at 25° and 30º C lasted 3.92, 3.49 days.

(6). Life cycle for female was 21.73, 19.99 days and for male 13.32, 13.38 days at 25° and 30º C., respectively.

(7). Preoviposition, Oviposition, Postoviposition periods takes 3.27, 25.1 and 3.4 days at 25° and 2.1, 19.13 and 2.7 days at 30°C.

(8). Longevity for female and male at 25° was 31.77, 26.92 days. But at 30º C. consumed 23.93, 16.27 days.

(9). Female life span lasted 53.5, 43.92 days and male life span 40.24, 29.65 days at 25° and 30º C.

(10). Female deposited 47.2 eggs at 25° and at 30ºC 30.12 eggs.

C) Chemical analysis of predator mite *Dactyloscirus sp.* and its preys

Biochemical analysis of the predator and its preys clarified the following:

Acarid mite has 0.230 mg/g fresh wt sugar content and contains 0.0653 % of glucose and 12 detectable types of amino acids.

Free living nematode contains 0.0607% of glucose, 11 detectable types of amino acids and 0.261 mg/g fresh wt. of sugar content.

Collembola contains the highest percentage of glucose content between preys 0.0727%, 9 detected types of amino acids and the total sugar content was 0.349 mg/g fresh wt.

In addition, by making the same chemical analysis on *Dactyloscirus sp*. we noticed that this predator contain 0.0970% of glucose content, 13 measured kinds of amino acids and the amount of sugar was 0.301 mg/g fresh wt.

From these results we concluded that all these preys (acarid mite, Collembola and free living nematode) are considered as suitable preys for *Dactyloscirus sp*. However, the most suitable temperature for this predator was 25ºC which increased the life cycle and fecundity.