



**Identification of phoretic mite from red palm weevil *Rhynchophorus ferrugineus*(Olivier,1790) from Basrah province south of Iraq**

**By**

**Shurooq Abdullah Najim**

Department of Ecology , College of Science, University of Basrah , Iraq

**Hussain Ali Jabbar**

Department of plant protection, Basrah Agriculture Directorate, Iraq

**Basil Yousuf Mahdi**

Department of plant protection, Basrah Agriculture Directorate, Iraq

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استلام البحث

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قبول البحث

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**Identification of phoretic mite from red palm weevil  
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province south of Iraq**

**Abstract:**

The red palm weevil *Rhynchophorus ferrugineus* (Olivier,1790), is the main pests on palm trees, adult of this pests were collected from infested field in Safwan city, Basrah province south of Iraq . During an investigation on phoretic mite associates of the red palm weevil *Rhynchophorus ferrugineus*(Olivier,1790), two genus of Uropodid mites deutonymph have been attached by anal pedicel to body parts of adult red palm weevils were collected and identified as *Centrouropoda* (Uropodidae), and *Uroobovella* (Urodinychidae), according to accurate taxonomic keys.The differentiations between two genus of mites were studied. The deutonymphs were examined and photographed by AM Scop camera installed on light microscope , the insect were photographed by LEICA microscope .The infestation symptoms were illustrated with pictures.

**Key word:** *Centrouropoda* spp. *Uroobovella* spp, Basrah, Iraq, date palm, red palm weevil.

## **Introduction:**

The red palm weevil, *Rhynchophorus ferrugineus*(Olivier,1790)(Coleoptera: Curculionidae),has been reported from many Asian countries, it is one of most important pest of palm trees (Murphy and Brisco, 1999).

In last years it had been recorded in Iraq, from Safwan city south of Iraq, it was detected on date palm trees (*Phoenix dactylifera* L, Arecales: Arecaceae) ( Aletby, 2016).

Several species of mite have a stable or occasional symbiotic relationship with insect from various orders, members of several mite families attack coleopteran insects.

The phoretic mite which hitch ride on more mobile animals to get from one place to another, this behavior is known as phoresy and in other word is commensalism rather than parasitism, but the dense accumulation of these mite may weight down their insects carriers causing reduction to their fitness and sometimes death ( Ferry and Gomes, 2002).

## **Materials and Methods**

The specimens were collected from infested date palms (*Phoenix dactylifera*) , that showed signs of infection, from Safwan district south of Basra province (coordinates N 30°6′ 58.4 E 47° 39′ 12″), during the period from 1 December 2020 to 1 March 2021.

**Symptoms of injury by red palm weevil:** (Fig,4) In the first stage of infestation, a sticky substance of bright red color appears at the bases of the leaves, and when the infection develops, holes appear in the bases of the leaves from which sawdust come out. When the bases of the leaves were removed by means of the electric saw, the incomplete and adult stages

were appeared in transporting vessels of the date palm tree. The specimens were collected by the hand and put in containers with 75% alcohol ethyl

### **Mite identification and distribution pattern:**

The specimens of insects (weevils) were investigated carefully under the dissecting microscope, the mites separated from different parts of insect (elytra and thorax as in figure 1). by a soft brush and preserved in 70% ethanol, the mites were cleared and mounted in Hoyer's medium on permanent microscope slide for identification under 400x magnification.

The specimens of insects were photographed by Leica EZ4HD microscope, while the mites were studied and photographed by AM SCOPE camera installed on light microscope (Novel)

The two genera of mite were identified according to morphological characters were described in many studies (Abo-shnaf and Allam, 2019; Slimmane-Kharrat and Ouali, 2019; Dilipkumar *et al.*, 2015).

### **Results and Discussion:**

The identification was based on morphological characters, size of specimen, color and anal pedicels, mite fixation locality on the red palm weevil body .

The most abundance genus was *Centrouropoda*, Barlese, 1917 (Mesostigmata: Uropodidae) it has been collected from elytra, nearly 250 individuals were collected from five specimens of red palm weevils (Fig, 1).

Nearly 90 specimens of genus *Uroobovella* Barlese, 1903 (Mesostigmata: Urodinychidae) were collected from five insects of red palm weevils.

The deutonymph of *Centrouropoda* Barlese,1917 differentiated by their short, broad and dark brown anal pedicel. (Fig.2 ).

The specimens of *Uroobovella*, Barlese,1903 were found adhered by long flexible, slim pale and brown anal pedicels to the pygidium (Fig.3).

In previous studies, the references were illustrated the effect of this type of mites on biological activity of palm weevil, the study mentioned that large numbers of mites may limit the ability of the insect to fly(Al-Deeb et al., 2011), and considered, that mites may have a role in feeding on weevil larvae and making them a source of protein .

In the same context, Al-Deeb *et al.* 2011, Cardoza *et al.* 2008, Mazza *et al.* 2011, reported that phoretic mites act as parasites to their respective hosts. But many studies must be done in this subject to determine if this mite can be used in biological control programs to control the red palm weevil.



**Figure. 1: Red palm weevil with phoretic mites.**



Figure 2. A: Deutonymph of genus *Centrouropoda*, B: Elytra of red palm weevil with phoretic mites.



Figure 3 . A: Deutonymph of genus *Uroobovella* , B Thorax of red palm weevil with phoretic mite.



**Figure 4: Symptoms of infestation by red palm weevil.**

**Conclusion :**

Several species of mite have a stable or occasional symbiotic relationship with insect from various orders, members of several mite families attack coleopteran insects. Several studies should be done in this subject to determine if this mite can be used in biological control programs to control the red palm weevil.

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