

HOST PLANTS AND DISTRIBUTION OF SOME WHITEFLIES SPECIES (HEMIPTERA, ALEYRODIDAE) IN THE MIDDLE OF IRAQ*

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Received Date: 25 September 2017

Accepted Date: 20 November 2017

ABSTRACT

Ten species of whiteflies (Hemiptera, Aleyrodidae) representing six genera were studied from a collection from different localities in the middle of Iraq. These species are *Acaudaleyrodes rachipora* (Singh, 1931); *Bemisia afer* (Priesner and Hosny, 1934); *Bemisia tabaci* (Gennadius, 1889); *Dialeurodes citri* (Ashmead, 1885); *Dialeurodes kirkaldy* (Kotinsky, 1907); *Neomaskellia andropogonis* Corbett, 1926; *Siphoninus phillyreae* (Haliday, 1835); *Trialeurodes ricini* (Misra, 1924); *Trialeurodes vapovarium* (Westwood, 1856) and *Trialeurodes irakeensis* (Al-Malo and Abdul-Rassoul, 2000). Notes are given on their localities, date of collection and host plants.

Key words: Aleyrodidae, Distribution, Host plants, Iraq, Whiteflies.

INTRODUCTION

Whiteflies are small insects belonging to the family Aleyrodidae order Hemiptera; it comprised 1556 species in 161 genera from all over the world (Evans, 2007); they feed on about 164 plant families (Mound and Halsey, 1978). Duffus and Flock (1982) indicated that as a result of their feeding they transmit about thirty viral diseases, in addition to this the secretion of the honeydew causes fungi growth.

At that time, there was no taxonomic study for this family in Iraq, but there were recorded some species such as Hussain (1963) who reported *Bemisia tabaci* (Gennadius, 1889); followed by Derwesh (1965) who added two more species *Acaudaleyrodes rachipora* (Singh, 1931) (= *Acaudaleyrodes citti* (Priesner and Hosny, 1934)) and *Trialeurodes* sp.; two further species were reported by Mound and Halsey (1978) namely *Trialeurodes rara* Singh, (1931) and *Trialeurodes ricini* (Misra, 1924). Subsequently, one species was added by Swailm *et al.* (1974) namely *Siphoninus granati* (Priesner and Hosny, 1934), which was a synonym of *S. phillyreae* (Mound and Halsey, 1978) and five species were added to the Iraqi fauna by Farag and Amine (1982). These were *Aleyrodes proletella* (Linnaeus, 1758), *Bemisia afer* (Priesner and Hosny, 1934), *Bemisia hanocki* (group), *Siphoninus phillyreae* (Haliday, 1835), and *Trialeurodes porosus* (Priesner and Hosny, 1934).

*This paper is part of M.Sc. thesis by the first author.

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It appeared later that one of these species *T. porosus* was a synonym of *Aleuroclava porosus* (Priesner and Hosny, 1937) (Evans, 2007). Al-Malo and Abdul-Rassoul (2000) described *Trialeurodes irakeensis* as a new species to the science.

MATERIALS AND METHODS

Pupal cases of whitefly have been collected from infected plant leaves during the years 1986 to 1988, in the central region of Iraq; the specimens were collected from about 50 species of host plants belonging to 25 plant families, and kept in the petri dishes. The infected leaves by the whitefly were examined by a binocular dissecting microscope to distinguish the pupal case with a fine needle, pupal cases were mounted on slides according to Bink (1979), and examined under a compound microscope by using an ocular micrometer to measure length of the insect. Identification keys of Mound (1965, 1966), Habib and Farag (1970) and Sampson and Drews (1956) were used to identify species collected during this study.

RESULTS AND DISCUSSION

List of species reported in this study:

Acaudaleyrodes rachipora (Singh,1931) (=A. citri Priesner and Hosny, 1934)

Materials Examined: 12 pupal case, Baghdad 21.II.1987, 26. V.1987, 9.IV.1988 on leaves of *Zizyphus spina-christi* (Linne.) Wild. (Rhamnaceae); 4 pupal case, Karbala, 10.III.1988, 1.IV.1988 on leaves of *Zizyphus spina-christi* (Linne.) Wild. (Rhamnaceae); 2 pupal case, Baghdad, 27.XII.1987 on leaves of *Punica granatum* Linne. (Lythraceae); 3 pupal case, Diyala, 3.II.1988 on leaves of *Punica granatum* Linne. (Lythraceae).

Bemisia afer (Priesner and Hosny, 1934)

Materials Examined: 16 pupal case, Baghdad, 4,10.Vii.1988 on leaves of *Rosa* sp. (Rosaceae); 6 pupal cases, Baghdad, 9, 25.IV.1988, 26.v.1988 on leaves of *Zizyphus spina-christi* (Linne.) Wild. (Rhamnaceae); 3pupal case, Karbala, 14.VI.1988 on leaves of *Zizyphus spina-christi* (Linne.) Wild. (Rhamnaceae); 6 pupal case, Baghdad, 23, 27.IV.,I.V., 14.VII.1988 on leaves of *Citrus* sp. (Rutaceae); 4 pupal case, Diyala, 4.V, 4.VII., 16.VI.1988 on leaves of *Citrus* sp. (Rutaceae); 2 pupal case, Baghdad, 27.IV.1988 on leaves of *Vitis vinifera* Linne.(Vitaceae); 1 pupal cases, Baghdad, 7.VI.1988 on leaves of *Punica granatum* Linne. var. *nana* (Punicaceae); 1 pupal case, Baghdad, 18.VI.1988 on leaves of *Lagerstroemia indica* Linne.(Lythraceae).

Bemisia tabaci (Gennadius, 1889)

Materials Examined: 3 pupal case,Baghdad, 21.VIII.1987 on *Hibiscus esculentus* L. (Malvaceae); 10 pupal case,Baghdad, 20.VIII.1978, 22. VI.1988 on *Cucumis sativus* L. (Cucurbitaceae); 3 pupal case,Baghdad, 10.VII.1987 on *Gossypium hirsutum* L. (Malvaceae); 8 pupal case,Baghdad, 1.IX., 22.Xii.1987, 14.IV.1988 on *Hibiscus rosa-sinensis* L. (Malvaceae) ; 9 pupal case,Baghdad, 20.V.1987, 2, 4.IV1988 on *Zinnia elegans* Jacq (Asteraceae); 5 pupal case,Baghdad, 30.VI.1988 on *Cynanchum acutum* L. (Asclepiadaceae); 10 pupal case, Baghdad, 20.VIII.1987, 18.IX.1988 on *Helianthus annuus* L. (Asteraceae); 4 pupl case, Baghdad,9, 10, 13.IV. 1988 on *Zizyphus spina-christi* (Linne.) Wild. (Rhamnaceae); 2 pupl case, Baghdad, 30.VI. 1988 on *Prunus armeniaca* L. (Rosaceae); 3 pupl case, Baghdad, 7.V.1988 on *Capparis spinosa* L. (Capparaceae); 2 pupl case, Baghdad, 10.VII.1988, on *Verbena hybrid* V. (Verbenaceae); 3 pupal case, Baghdad, 21.VIII.1987, on *Ricinus communis* Linne. (Euphorbiaceae); 5 pupl case, Baghdad, 20.IX.1987 on *Sonchus communis* L. (Asteraceae); 7 pupl case, Baghdad, 26.VI.1988 on *Cardaria draba* (L). Desv. (Brassicaceae); 7 pupl case, Baghdad, 18.VI.1988 on *Plantago lanceolata* L. (Plantaginaceae); 5 pupal case Baghdad, 28.Vi.1988 on *Convolvus arvensis* L.

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(Convolvulaceae); 5 pupal case Baghdad, 21.VIII.1988 on *Solanum melongena* L. (Solanaceae); 7 pupal case Baghdad, 21.VIII.1988 on *Solanum tuberosum* L. (Solanaceae); 5 pupal case Baghdad, 30.VIII.1988 on *Capsicum grossum* L. (Solanaceae); 3 pupal case Baghdad, 30.VI.1988 on *Citrus* sp. (Rutaceae); 5 pupal case Baghdad, 20.VII.1987 on *Amaranthus atropurpureus* Roxb. (Amaranthaceae); 5 pupal case Baghdad, 18.IV.1988 on *Rosa* sp. (Rosaceae); 4 pupal case Baghdad, 20.VII.1987 on *Phanera purpurea* (L.) Benth. (Fabaceae); 2 pupal case , Baghdad, 15.V.1987 on *Punica granatum* var. *nana* (Lythraceae); 3 pupal case , Baghdad, 16.VI .1988 on *Bougainvillea* sp. (Nyctaginaceae); 3 pupal case , Baghdad, 16.VI.1988 on *Bougainvillea* sp. (Nyctaginaceae); 2 pupal case , Baghdad, 27.IV .1988 on *Ficus carica* L. (Moraceae); 6 pupal case , Baghdad, 3.X .1988 on *Nicotiana tabacum* L. (Solanaceae); 5 pupal case , Hila, 8.X .1987 on *Hibiscus esculentus* L. (Malvaceae); 6 pupal case , Anbar, 21.VIII .1987 on *Chrozophora tinctoria* (L.) Juss. (= *Chrozophora varbascifolia* (Wild.) Juss. (Euphorbiaceae); 4 pupal case , Anbar,10.X.1987 on *Tagetes* sp. (Asteraceae); 4 pupal case , Anbar,10.X.1987 on *Solanum melongena* L. (Solanaceae); 4 pupal case , Anbar,15.X.1987 on *Ipomoea batatas* (L.) Poir (Convolvulaceae); 4 pupal case , Anbar,3.XI.1987 on *Nicotiana tabacum* L. (Solanaceae); 7 pupal case , Anbar,10.X.1987 on *Helianthus tuberosus* L. (Asteraceae); 3 pupal case , Diyalar,10.X.1987 on *Solanum nigrum* L. (Solanaceae); 4 pupal case , Diyala,3.X.1987 on *Chrozophora tinctoria* (L.) Juss. (Euphorbiaceae); 5 pupal case , Diyalar,3.X.1987 on *Euphorbia helioscopia* L. (Euphorbiaceae); 3 pupal case , Diyala,3.X.1987 on *Zinnia elegans* Jacq. (Asteraceae); 3 pupal case , Wasit, 3.VI., 4.VII.1988 on *Zinnia elegans* Jacq. (Asteraceae); 7 pupal case , Wasit, 29.VI.,20.VII., 23.VII.1987 on *Hibiscus rosa - sinensis* L. (Malvaceae); 7 pupal case , Karbala, 20.VII.1987 on *Brassica napus* L. (Brassicaceae); 3 pupal case, Karbala, 20.VII.1987 on *Helianthus annuus* L. (Asteraceae).

***Dialeurodes citri* (Ashmead, 1885)**

Materials Examined: 7 pupal case, Baghdad, 17.IV. 1988, 4.V.1988 on leaves of *Jasminum sambac* (L.) Aiton . (Oleaceae).

***Dialeurodes kirkaldyi* (Kotinsk, 1907)**

Materials Examined: 11 pupal case, Baghdad, 17, 19.IV., 14.VII.1988 on leaves of *Jasminum sambac* (L.) Aiton. (Oleaceae).

***Neomaskellia andropogonis* Corbett, 1926**

Materials Examined: 14 pupal case, Anbar, 30.X.1987 on *Imperata cylindrica* (Linne.) P.Beauv (Poaceae).

***Siphoninus phillyreae* (Halliday, 1835)**

Materials Examined: 13 pupal case, Baghdad, 20.VIII.1987, 24.IV, 5.VI., 4.VII.1988 on *Pyrus communis* Linne. (Rosaceae); 8 pupal case, Baghdad, 12.VI., 10.VII.1988 on *Punica granatum* Linne. (Lythraceae); 10 pupal case, Anbar, 7.VI.1988 on *Punica granatum* Linne. (Lythraceae); Karbala, 24.V.1987 on *Citrus* sp. (Rutaceae); 12 pupal case Diyala, 12.V.1987 on *Citrus* sp. (Rutaceae).

***Trialeurodes ricini* (Misra, 1924) (= *T. rara* Singh, 1931)**

Materials Examined:43 pupal case, Baghdad, 4, 9.IV.1988 on *Zizyphus spina-christi* (Linne.) Wild. (Rhamnaceae); 21 pupal case, Baghdad, 22.XII.1986, 24.III,1987, 4.V.1988 on *Citrus* sp. (Rutaceae); 4 pupal case, Baghdad, 25.III., 4.IV.1988 on *Rosa* sp. (Rosaceae); 7 pupal case, 25.III.1987, 72 pupal case, Baghdad, 25.X.1987 on *Ricinus communis* Linne. (Euphorbiaceae); 7 pupal case, Baghdad, 6.IV. 1988, 14.VII.1988 on *Rosa* sp. (Rosaceae); 3 pupal case, Baghdad, 28.VI.1988 on *Hibiscus rosa-sinensis* Linne. (Malvaceae); 3 pupal case,

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Baghdad, 29.X.1987 on *Celosia cristata* Linne. (Amarantaceae); 5 pupal case, 25.I.1987, 6 pupal case, 4, 24.V.1987 Karbala on *Citrus* sp. (Rutaceae); 2 pupal case, Karbala, 3.X.1987 on *Ricinus communis* Linne. (Euphorbiaceae); Babil, 20.XII.1986, 4.VII.1988, 8.V.1988 on *Citrus* sp. (Rutaceae); 2 pupal case, Wasit, 23.V.1987 on *Citrus* sp. (Rutaceae); 5 pupal case, Diyala, 3, 4.IV.1988 on *Rosa* sp. (Rosaceae); 3 pupal case, Anbar, 8.III.1988 on *Rosa* sp. (Rosaceae).

***Trialeurodes vaporariorum* (Westwood, 1856)**

Materials Examined: Mounting (Rutaceae); 3 pupal case, Diyala, 17.IV.1987 on *Citrus* sp. (Rutaceae).

***Trialeurodes irakeensis* Al-Malo and Abdul-Rassoul, 2000**

Materials Examined: 4 pupal case, Baghdad, 3.IV.1987 on *Hibiscus rosa-sinensis* Linne. (Malvaceae).

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المضايف النباتية والانتشار لبعض أنواع الذباب الابيض
(Hemiptera, Aleyrodidae)
في وسط العراق

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تاريخ القبول: ٢٠١٧،١١،٢٠

تاريخ الاستلام: ٢٠١٧،٠٩،٢٥

الخلاصة

سجلت عشرة انواع من الذباب الابيض (رتبة نصفية الاجنحة: عائلة الذباب الابيض) تعود الى ستة اجناس، جمعت من مناطق مختلفة في وسط العراق، وهي: *Acaudaleyrodes rachipora* (Singh, 1931); *Bemisia tabaci* (Gennadius,1889); *Bemisia afer* (Priesner and Hosny, 1934); *Dialeurodes kirkaldy* (Kotinsky, 1907); *Dialeurodes citri* (Ashmead,1885); *Siphoninus phillyreae* (Haliday,1835); *Neomaskellia andropogonis* Corbett, 1926; *Trialeurodes vapovarium* (Westwood) 1856; *Trialeurodes ricini* (Misra,1924) *Trialeurodes irakeensis* Al-Malo and Abdul-Rassoul ,2000.

كما سجلت مناطق التوزيع، وتاريخ الجمع و المضايف النباتية لكل نوع منها.