International Journal of Nematology and Entomology Vol. 1 (3), pp. 042-052, August, 2013. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Full Length Research Paper

Annotated catalogue of whiteflies (Hemiptera: Sternorrhyncha: Aleyrodidae) from Arasbaran, Northwestern Iran

Hassan Ghahari[1]*, Shaaban Abd-Rabou[2], Jiri Zahradnik[3] and Hadi Ostovan[4]

[1]Department of Agriculture, Islamic Azad University, Shahre Rey Branch, Tehran, Iran.
[2]Plant Protection Research Institute, Ministry of Agriculture, Dokki-Giza, Egypt.
[3]Podebradova 498, 512 51, Lomnice nad Popelkou, Czech Republic. [4]Department of Entomology, Islamic Azad University, Fars Science and Research Branch, Iran.

Accepted May 1, 2013

The fauna of whiteflies (Hemiptera: Sternorrhyncha: Aleyrodidae) was studied in Arasbaran region, Northwestern Iran. A total of 25 species of 15 genera were collected which of these, two species including, *Tetralicia ericae* Harrison and *Trialeurodes ericae* Bink-Moenen are new records for Iran.

Key words: Aleyrodidae, fauna, new record, arasbaran, Iran.

INTRODUCTION

Whiteflies belonging to the order Hemiptera and comprise a single super family, Aleyrodoidea, within the suborder Sternorrhyncha. They are all placed in a single family, Aleyrodidae, and are small sap-sucking insects whose adults bear a remarkable superficial resemblence to tiny moths. Adult whiteflies are very small insects, most measuring 1 - 3 mm in body length. A structure known as a 'vasiform orifice' is unique to aleyrodids, and comprises the anus, a 'lingula' which ejects excreta, and an 'operculum' which partially or wholly covers the orifice itself. The vasiform orifice is present in all larval stages, as well in the adults (Mound and Halsey, 1978; Gerling, 1990).

Amongst the Sternorrhyncha, whiteflies appear to be a recently evolved group, with the oldest known fossil remains (not recognizably belonging to one of the two modern subfamilies) being from Lebanese amber from the lower Cretaceous, 135 million years ago (Schlee, 1970). Whiteflies with modern affinities are thus known from a period during which angiosperm plants underwent great diversification (Campbell et al., 1994). Many the rare species such as *Selaginella* (Mound et al., 1994) that habitually feed on ferns, and on 'fern allies' are exceptions to the rule. The great majority of whiteflies in existence today colonize only dicotyledonous angiosperms and a smaller, but significant, feed on monocots, particularly grasses and palms. The list of cultivated plants colonized by whiteflies is extensive, but a great many records concern the relatively few highly polyphagous whitefly species (Mound and Halsey, 1978; Carver and Reid, 1996). In the geographical area covered by this study, whiteflies are primarily pests of vegetable crops (especially in greenhouses), citrus and ornamental plants (Martin, 1999).

The systematic of both subfamilies is currently based almost entirely on the puparial stage, and adults in isolation can be identified only rarely. This situation has arisen, in part, because puparia are often discovered in the absence of adult insects. However, adult characters have been used with most success in the least speciose subfamily, Aleurodicinae, but a fundamental appraisal is much needed before adults are likely to be used more widely in whitefly systematics. The use of modern molecular techniques also promises to assist our understanding of the systematics of this insect group (Martin et al., 2000).

Arasbaran is an important region in East Azarbayjan province. This biosphere reserve situated in the north of Iran at the border to Armenia and Azerbaijan belongs to the Caucasus Iranian Highlands. In-between the Caspian, Caucasus and Mediterranean region, the area covers mountains up to 2,200 meters, high alpine meadows, semi- arid steppes, rangelands and forests, rivers and springs.

*Corresponding author. E-mail: h_ghahhari@yahoo.com.

Arasbaran is the territory of about 23,500 nomads who are mainly living in the buffer and transition zones (2000). Economic activities in the biosphere reserve are mainly agriculture, animal husbandry, horticulture, apiculture, handicrafts and tourism, but business activities can also be found in urbanized areas. The location of Arasbaran is 38°40' to 39°08'N; 46°39' to 47°02'E and its Altitude (metres above sea level) is +250 to +2,887.

The fauna of Iranian whiteflies is very diverse but rather unknown. Although, there have been a number of publiccations of whiteflies in different regions, but there has been no account of the group across the whole region. In the present research, the fauna of these important pests I studied in Arasbaran region.

MATERIALS AND METHODS

In connection with this study, the puparia of whiteflies were collected on host plants' leaves from different regions of Arasbaran region (East Azarbayjan province, Northwestern Iran). Slide- mounted material was prepared as the method of Martin (1985). Detailed information about synonymies and distribution of quoted species are available in this work (Evans, 2005; Martin and Mound, 2007).

RESULTS AND DISCUSSIONS

In a total of 25 species of 15 genera including, *Paraleyrodes*, *Acaudaleyrodes*, *Aleuroclava*, *Aleurolobus*, *Aleurothrixus*, *Aleuroviggianus*, *Aleyrodes*, *Asterobemisia*, *Bemisia*, *Bulgarialeurodes* , *Dialeurodes*, *Parabemisia*, *Siphoninus*, *Tetralicia* and *Trialeurodes* were collected from Arasbaran region. Of these, two species including, *Tetralicia ericae* Harrison and *Trialeurodes ericae* Bink-Moenen are new records for Iran. The list of species is presented as follow with the synonymies and distributional data.

Family aleyrodidae Westwood 1840

The family Aleyrodidae (Hemiptera) includes 161 genera and 1556 species in 3 extant (living) subfamilies (Aleurodicinae, Aleyrodinae and Udamosellinae), and one fossil (non-living) subfamily (Bernaeinae). The identification of genera and species is largely based upon characteristics present in the fourth stage nymph, known as the puparium. The family Udamosellinae, also known as "giant whiteflies" includes only 2 Neotropical species. Most whitefly species can be classified into their respective subfamilies (Aleyrodinae or Aleurodicinae) with the following key:

Key to subfamilies of aleyrodidae (Puparium) [Adapted from Evans, 2007]

1- Puparium usually with compound or agglomerate pores present, a claw present at the apex of each thoracic leg; lingula usually very long, extending past the vasiform orifice with two or more pairs of setae at its apex.....Aleurodicinae

1b- Pupa without compound pores present (simple pores rarely present), thoracic legs with adhesive or circular disc at the apices of the legs; lingula usually not long and extending past the vasiform orifice and with 1 pair of setae .....Aleyrodinae

Key to the subfamilies of aleyrodidae (Adults) [Adapted from Evans, 2007]

1- Forewing usually with a forked, central vein (Rs present, R1 and media veins strongly developed), forewing of *Paraleyrodes* with a single vein, males with 3 and females with four antennal segments; tarsal paronychium thin and spine-like; females with 4 and males with 3 ventral abdominal plates, respectively..... Aleurodicinae.

1b- Forewing with a single non-forked central vein (Rs present, R1 usually short or absent), tarsal paronychium thick and blade-like; females with 2 and males with 4 ventral abdominal plates, respectively .....Aleyrodinae.

Species list of aleyrodidae from arasbaran

In a total of 25 whitefly species from 15 genera and two Subfamilies Aleurodicinae and Aleyrodinae were collected and identified from different regions of Arasbaran. The list of species is below:

I. Subfamily Aleurodicinae Quaintance and baker 1913

Aleurodicinae Quaintance and Baker 1913: 25.

Genus *Paraleyrodes* Quaintance 1909

Paraleyrodes Quaintance 1909: 169 - 170. Type species: *Aleurodes perseae* Quaintance 1900, by monotypy.

Paraleyrodes minei Iaccarino 1990

Paraleyrodes minei Iaccarino 1990: 132. Holotype male. Syria: Tartous, 17.viii.1988, on *Citrus aurantium* (Rutaceae), Martin 1996: 1856.

Material: Khodafarin, July 2007 on *Piper* sp. (Piperaceae).

Distribution: Belize, Benin, Bermuda, Guatemala, Hawaii, Honduras, Hong Kong, Iran, Israel, Lebanon, Mexico, Morocco, Puerto Rico, Spain, Syria, Turkey, USA.

II. Subfamily Aleyrodinae Westwood 1840

Aleyrodinae Westwood 1840: 442.

Genus *Acaudaleyrodes* Takahashi 1951

Acaudaleyrodes Takahashi 1951a: 382. Type-species: *Acaudaleyrodes pauliani* Takahashi 1951, by monotypye.

***Acaudaleyrodes rachipora* (Singh) 1931**

Aleurotrachelus rachipora Singh 1931: Syntypes. India: Pusa and Dholi (Bihar), Navsari (Baroda), Miani (Punjab, on *Cassia fistula* (Fabaceae), *Euphorbia pilulifera* (Euphorbiaceae), *Bauhinia* sp. (Fabaceae) and *Dalbergia sissoo* (Fabaceae).

***Acaudaleyrodes rachipora* (Singh); Russell 1962: 64**

Aleurotrachelus citri Priesner and Hosny 1934. Syntypes. Egypt: Behera, on *Citrus* spp. (Rutaceae), *Punica granatum* (Punicaceae) and other plants; synonymy according to Jesudasan and David 1991: 242.
Acaudaleyrodes citri (Priesner and Hosny); Russell 1962: 64.
Aleurotrachelus alhagi Priesner and Hosny 1934. Syntype. Egypt, Minya, Luxor-Karnak, on *Alhagi* sp. (Fabaceae); Mound 1965: 119.

Material: Kalibar, August 2006 on *Punica granatum* (Punicaceae).

Distribution: Cameroon, Canary Islands, Chad, Cyperus, Egypt, India, Iran, Iraq, Israel, Jordan, Kenya, Liberia, Madagascar, Niger, Nigeria, Saudi Arabia, Sierra Leon, South Africa, Sudan.

Genus *Aleuroclava* Singh 1931

Aleuroclava Singh 1931: 90. Type species: *Aleuroclava complex* Singh 1931, by monotypy.
Aleuromigda Singh 1931. Nomen nudum, no type species designated.
Aleurotuberculatus Takahashi 1932: 20. Type species.
Aleurotuberculatus gordoniae Takahashi 1932, by original designation; synonymy according to Martin 1999: 31.

Japaneyrodes Zahradnik 1962: 13. Type species.
Aleurotuberculatus trachelospermi Takahashi 1938, by original designation; synonymy according to Mound and Halsey 1978: 78.
Hindaleyrodes Meganathan and David 1994: 37. Type species. *Hinaleyrodes hindustanicus*, by monotypy; synonymy according to Martin and Mound 2007: 9.
Martiniella Jesudasan and David 1990: 7. Type species.
Aleurotuberculatus canagae Corbett 1935, by original designation; synonymy according to Martin 1999: 31; Manzari and Quicke 2006: 2470.
Taiwanaleyrodes Takahashi 1932: 28. Type species.
Taiwanaleyrodes meliosmae Takahashi 1932, by monotypy; synonymy according to Manzari and Quicke 2006: 2470.
Note: Martin 1999: 31 synonymized *Martiniella* Jesudasan and David 1990 with *Aleuroclava*, stating that the characters used to separate it from *Aleuroclava* - the very much enlarged, jointed cephalic and first abdominal setae were also present in species of *Taiwanaleyrodes* and *Dialeurodes*, and that this character has been seen to vary among samples. Sundararaj and Dubey 2004: 358 considered *Martiniella* to be a valid genus based upon its differentiated type of setae.

***Aleuroclava neolitseae* (Takahashi) 1934**

Aleurotuberculatus neolitseae Takahashi 1934: 55. Syntypes. Taiwan: on *Neolitsea acuminatissima* (Lauraceae), TARI.
Aleuroclava neolitseae (Takahashi); Martin 1999: 31.

Material: Ahar, July 2007 on *Szygium* sp. (Myrtaceae).

Distribution: Iran, Malaysia, New Guinea, Sarawak, Sulawesi, Taiwan.

Genus *Aleurolobus* Quaintance and Baker 1914

Aleurolobus Quaintance and Baker 1914: 108. Type species: *Aleurodes marlatti* Quaintance 1903, by original designation.
Neoaleurolobus Takahashi 1951b: 5. Type species.
Aleurolobus musae Corbett 1935, by monotypy; synonymy according to Regu and David 1993: 32; Martin and Mound 2007: 13.
Rositaleyrodes Meganathan and David 1994: 48. Type species. *Aleurolobus opilismeni* Takahashi 1931, by monotypy; synonymy according to Manzari and Quicke 2006: 2471; Martin and Mound 2007: 13.

***Aleurolobus marlatti* (Quaintance) 1903**

Aleurodes marlatti Quaintance 1903: 61. Lectotype (designated Martin 1999:43). Japan: on orange [*Citrus* sp. (Rutaceae)], USNM.
Aleurolobus marlatti (Quaintance); Quaintance & Baker 1914: 109.
Aleurolobus niloticus Priesner and Hosny 1934: 1. Syntypes. Egypt: on *Zizyphus spina-christi* (Rhamnaceae), USNM; Bink-Moenen 1983: 50; synonymy according to Martin 1999: 43.
Aleurolobus ravisei Cohic 1968: 95. Syntypes. Congo: on *Hymenocardia acida* (Euphorbiaceae), CORSTOM; synonymized with *A. niloticus* by Bink-Moenen 1983: 50.

Material: Khomarloo, September 2007 on *Hedera* p. (Araliaceae).
Distribution: Chad, China, Egypt, India, Iran, Israel, Japan, Java, Jordan, Malaysia, Philippines, Saudi Arabia, Taiwan.

Aleurolobus moundi David and Subramaniam 1976

Aleurolobus moundi David and Subramaniam 1976: 161. Holotype. India: on *Bassia* sp. (Chenopodiaceae), ZSI.

Material: Aras boundary, September 2006 on *Euphorbia* sp. (Euphorbiaceae).

Distribution: Iran, India.

Aleurolobus olivinus (Silvestri) 1911

Aleurodes olivinus Silvestri 1911: 214. Syntypes. Italy: on *Olea* sp. (Oleaceae), IESP.
Aleurolobus olivinus (Silvestri); Quaintance and Baker 1915.

Material: Kalibar, August 2006 on *Olea ferruginea* (Oleaceae).

Distribution: China, Cyperus, Egypt, France, Israel, Italy, Morocco, Spain.

Aleurolobus selangorensis Corbett 1935

Aleurolobus selangorensis Corbett 1935b: 819. Syntypes. Malaya: on undetermined plant; Martin 1985: 317.

Material: Ahar, September 2007 on *Vitex pseudo-negundo* (Verbenaceae).

Distribution: Iran, Malaya, Papau New Guinea.

Genus *Aleurothrixus* Quaintance and Baker 1914

Aleurothrixus Quaintance and Baker 1914: 103. Type species. *Aleyrodes howardi* Quaintance 1907: 91, junior synonym of *Aleurodes floccosa* Maskell 1896: 432.
Aleurothrixus (*Philodamus*) Quaintance and Baker 1917: 404. Type species. *Aleyrodes interrogationis* Bemis 1904, by monotypy.
Hempelia Sampson and Drews 1941: 166. Type species. *Hempelia chivelensis* Sampson and Drews 1941, by monotypy; synonymy according to Martin 2005: 20.

Aleurothrixus floccosus (Maskell) 1895

Aleurodes floccosa Maskell 1895: 432. Syntypes. Cuba: on *Citrus* sp. (Rutaceae), NZAC.
Aleurothrixus floccosus (Maskell); Quaintance and Baker 1914: 91.
Aleyrodes horridus Hempel 1899: 394. Syntypes. Brazil: on *Psidium guajava* (Myrtaceae).
Aleurothrixus horridus (Hempel); Quaintance and Baker 1914: 103.
Aleyrodes howardi Quaintance 1907: 91. Syntypes. Cuba: on *Citrus* sp., USNM; synonymized by Costa Lima 1942: 425.

Material: Khodaafrin, July 2007 on: *Cordia* sp. (Boraginaceae).

Distribution: Angola, Antigua, Argentina, Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canary Islands, Chile, Colombia, Congo, Costa Rica, Colombia, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, France, Gabon, Guadeloupe, Guam, Guatemala, Guinea, Guyana, Haiti, Honduras, India, Iran, Italy, Jamaica, Japan, Liberia, Madeira, Martinique, Mexico, Montserrat, Morocco, Nicaragua, Nigeria, Panama, Paraguay, Portugal, Puerto Rico, Reunion, Sicily, Spain, Suriname, Tahiti, Taiwan, Thailand, Trinidad & Tobago, Uruguay, USA, Venezuela, Virgin Islands.

Genus *Aleuroviggianus* Iaccarino 1982

Aleuroviggianus Iaccarino 1982: 37. Type species. *Aleuroviggianus adrianae* Iaccarino 1982, by original designation.

Aleuroviggianus adrianae Iaccarino 1982

Aleuroviggianus adrianae Iaccarino 1982: 38. Holotype. Italy: Portici, on *Quercus ilex* (Fagaceae), UNP.

Material: Ahar, September 2007 on *Quercus macranthera* (Fagaceae).

Distribution: France, Greece, Iran, Italy, Spain.

Aleuroviggianus halperini Bink-Moenen 1992

Aleuroviggianus halperini Bink-Moenen 1992, in Bink-Moenen and Gerling 1991: 14. Holotype. Israel: Mt. Meron, ix.1976, R. Neeman, on *Quercus calliprinos* (Fagaceae), BMCol.

Material: Kalibar, August 2006 on *Quercus petraea* (Fagaceae).

Distribution: Crete, Greece, Iran, Rhodes, Turkey.

Genus *Aleyrodes* Latreille 1796

Aleyrodes Latreielle 1796: 93. Type species. *Phalaena* (*Tinea*) *proletella* Linnaeus 1758: 537, by monotypy.
Conantulus Goux 1987: 65. Type species. *Conantulus*

lacombiensis Goux 1988, by monotypy; synonymy according to Martin 1999: 53.

Aleyrodes lonicerae Walker 1852

Aleyrodes lonicerae Walker 1852: 1092. Syntypes. England: on *Lonicera periclymenum* (Caprifoliaceae).
Aleyrodes borchsenii Danzig 1966: 371. Holotype. USSR: southern Maritime Territory, on *Urtica* sp. (Urticaceae), ZIN; Danzig 2004.
Aleyrodes fragariae Walker 1852: 1092. Syntypes. England: on *Fragaria* sp. (Rosaceae); Ossiannilsson 1955: 193.
Conantulus lacombiensis Goux 1987: 65; Martin 1999: 53.
Aleyrodes menthae Haupt 1934: 139. Syntypes. Germany: on *Mentha piperita* (Labiatae); Ossiannilsson 1955: 193.
Aleyrodes spiraeae Douglas 1894b: 73. Syntypes. Germany: on *Lonicera xylosteum* (Caprifoliaceae); Mound 1966: 406.
Aleyrodes rubi Signoret 1868: 382. Syntypes. France: on *Rubus fruticosus* (Rosaceae); Trehan 1940: 608.

Material: Aynalo, June 2007 on *Solanum melongena* (Solanaceae).

Distribution: Austria, England, Finland, France, Germany, Hungary, Iran, Israel, Italy, Korea, Poland, Portugal, Russia, Sweden, Switzerland, Turkey, USSR, Yugoslavia.

Aleyrodes proletella (Linnaeus) 1758

Phalaena (*Tinea*) *proletella* Linnaeus 1758: 537. Syntypes. Europe: on *Brassica* sp. (Brassicaceae).
Aleyrodes brassicae Walker 1852: 1092. Syntypes. England: on cabbage (*Brassica* sp.); Haupt 1935: 256.
Aleyrodes chelidonii Latreille 1807; Walker 1852: 1092.
Aleyrodes euphorbiae Low 1867: 746. Syntypes. Austria: on *Euphorbia peplus* (Euphorbiaceae); Zahradnik 1991: 113.
Coccus preanthis Schrank 1801: 147.
Aleyrodes prenanthis (Schrank) 1801; Cockerell 1902: 281.
Aleyrodes youngi Hempel 1901: 385. Syntypes. Brazil: on cabbage [*Brassica* sp. (Brassicaceae)].

Material: Khodafarin, July 2006 on *Brassica oleracea* (Brassicaceae).

Distribution: Angola, Austria, Azores, Belgium, Bermuda, Brazil, Canary Islands, Czech Republic, Egypt, England, Finland, France, Germany, Hong Kong, Hungary, Iran, Italy, Kenya, Mexico, Mozambique, New Zealand, Puerto Rico, Poland, Portugal, Russia, Sierra Leon, Spain, Sweden, Switzerland, USA (intercepted in USA but not known to be established), USSR, Virgin Islands, Yugoslavia, Zimbabwe.

Genus *Asterobemisia* Trehan 1940

Asterobemisia Trehan 1940: 591. Type species. *Aleurodes carpini* Koch 1857, by monotypy. [*Aleyrodes* [*sic*] *carpini* Koch].
Bemisia (*Neobemisia*) Visnya 1941: 8. Type species: *Bemisia yanagicola* Takahashi 1934, by original designation; Mound and Halsey 1978: 104.
Neobemisia Visnya; synonymy according to Zahradnik 1961: 61.

Asterobemisia carpini (Koch) 1857

Aleurodes carpini Koch 1857: 327. Syntypes. Germany (west): on *Carpinus betulus* (Betulaceae), BMNH.
Asterobemisia carpini (Koch) 1857; Trehan 1940: 593.
Aleurodes avellanae Signoret 1868: 385. Lectotype (designated by Zahradnik 1961: 437). France: on *Corylus avellana* (Betulaceae), IESP; Mound and Halsey 1978: 105.
Aleurochiton avellanae (Signoret); Harrison 1920: 59; Zahradnik 1956: 44.
Bemisia (Neobemisia) avellanae (Signoret); Visnya 1941: 8.
Aleurodes ribium Douglas 1888: 265. Lectotype. unknown host and locality, BMNH.
Bemisia (*Neobemisia*) *ribium* (Douglas); Visnya 1941: 9.
Aleurodes rubicola Douglas 1891: 200. Lectotype. England: on bramble [*Rubus* sp. (Rosaceae)] leaves, BMNH; Trehan 1939: 266.
Aleurochiton vaccinii Kunow 1880: 46. Syntypes. Konisberg Prov, on *Vaccinium uliginosum* (Ericaceae), BMNH.

Material: Horand, October 2006 on *Corylus avellana* (Betulaceae).

Distribution: Austria, Costa Rica, Czech Republic, Denmark, England, Finland, France, Germany, Hungary, Iran, Italy, Korea, Moldavia, Netherlands, Spain, Sweden, Taiwan, USSR, Former Yugoslavia.

Genus *Bemisia* Quaintance and Baker 1914

Bemisia Quaintance & Baker 1914: 99. Type species. *Aleurodes inconspicua* Quaintance 1900: 28 (junior synonym of *Aleurodes tabaci* Gennadius 1889).
Cortesiana Goux 1988: 63. Type species. *Cortesiana restonicae* Goux 1988, by monotypy; synonymy according to Martin 1999: 54.
Roucasia Goux 1940: 45. Type species. *Roucasia ovata* Goux 1940, by monotypy; synonymy according to Danzig 1964: 326.

***Bemisia afer* (Priesner and Hosny) 1934**

Dialeurodoides afer Priesner and Hosny 1934: 6. Syntypes. Egypt, Kom Ombo, 4.vii.1931, on *Lawsonia alba* (Lythraceae), USNM.
Bemisia afer (Priesner and Hosny); Habib and Farag 1970: 8.
Bemisia (*Neobemisia*) *afra* [sic] (Priesner and Hosny); Visnya 1941: 8.
Bemisia citricola Gomez-Menor 1945: 293. Syntypes. Spain, Orihuela, Alicante, on *Citrus limonium*, *Citrus aurantium* (Rutaceae), *Eucalyptus* sp. (Myrtaceae), *Morus* sp. (Moraceae), *Cynanchum acutum*, *Laurus nobilis* (Lauraceae).
Bemisia hancocki Corbett 1936. Syntypes. Uganda: 1934, G. Hancock, on cotton [*Gossypium* sp. (Malvaceae)]; BMNH; synonymy according to Bink-Moenen 1983: 95.
Bemisia (*Neobemisia*) *hancocki* Corbett; Visnya 1941: 8.

Material: Khodafarin, July 2006 on *Gossypium hirsutum* (Malvaceae).

Distribution: Australia, Brazil, Cameroon, Chad, China, Congo, Egypt, Guinea, India, Iran, Israel, Italy, Ivory Coast, Kenya, Korea, Madagascar, Mulawi, New Guinea, Niger, Nigeria, Pakistan, Sicily, Sierre Leon, Spain, South Africa, Sudan, Uganda, Zaire.

***Bemisia tabaci* (Gennadius) 1889**

Aleurodes tabaci Gennadius 1889: 1-3. Syntypes. Greece: on tobacco [*Nicotiana* sp. (Solanaceae)], USNM.
Bemisia tabaci (Gennadius); Takahashi 1936: 110.
Bemisia argentifolii Bellows and Perring 1994, in Bellows et al., 1994; synonymy according to De Barro et al., 2005: 201.
Bemisia achyranthes Singh 1931: 82. Syntypes. India: on *Achyranthes aspera* [synonmized with *B. gossypiperda* by Corbett 1935b: 783].
Bemisia argentifolii Bellows and Perring 1994, in Bellows *et al*. 1994. Holotype pupal case. USA: California, xii.1992, stock culture, on *Phaseolus limensis* (Fabaceae).
Bemisia bahiana Bondar 1928: 30. Syntypes. Brazil: on *Nicotiana tabacum*.
Bemisia costa-limai Bondar 1928: 27. Syntypes. Brazil: on *Euphorbia hirtella* (Euphorbiaceae).
Bemisia emiliae Corbett 1926: 273. Syntypes. Sri Lanka: on *Emilia sonchifolia* (Asteraceae).
Bemisia goldingi Corbett 1935c: 249. Syntypes. Nigeria: on cotton [*Gossypium* sp. (Malvaceae)].
Bemisia gossypiperda Misra and Singh 1929: 1. Syntypes. India: on many plants.
Bemisia gossypiperda var *mosaicivectura* Ghesquiere 1934: 30. Syntypes. Zaire: on *Jatropha multifida* (Euphorbiaceae) and *Manihot* sp. (Euphorbiaceae).
Bemisia hibisci Takahashi 1933: 17. Syntypes. Taiwan: on *Hibiscus rosa-sinensis* (Malvaceae).
Aleurodes inconspicua Quaintance 1900: 28. Syntypes. USA; Florida, Barlow, on *Physalis* sp. (Solanaceae), USNM; Russell 1957: 122.
Bemisia longispina Priesner & Hosny 1934: 6. Syntypes. Egypt: on *Psidium guajava* (Myrtaceae).
Bemisia lonicerae Takahashi 1957: 16. Syntypes. Japan: on *Lonicera japonica* (Caprifoliaceae).
Bemisia manihotis Frappa 1938: 30. Syntypes. Madagascar: on *Manihot* sp. (Euphorbiaceae).
Bemisia minima Danzig 1964: 638. Holotype. USSR: Caucasian Black Sea coast, on *Elsholtzia patrini*. *Bemisia miniscula* Danzig 1964: 640. Holotype. USSR: Adzharia, on *Cissus salvifolius* (Vitaceae).
Bemisia nigeriensis Corbett 1935c: 250. Syntypes. Nigeria: on cassava [*Manihot* sp. (Euphorbiaceae)].
Bemisia rhodesiansis Corbett 1936: 22. Syntypes. Rhodesia: on tobacco [*Nicotiana* sp.].
Bemisia signata Bondar 1928: 29. Syntypes. Brazil: on *Nicotiana glauca*.
Bemisia vayssierei Frappa 1939: 255. Syntypes. Madagascar: on tobacco [*Nicotiana* sp.].
Cortesiana restonicae Goux 1988. Holotype. Corsica.

Material: Abshahmad, June 2006 on *Nerium oleander* (Apocynaceae); Khomarloo, Augut 2006 on *Nerium oleander* (Apocynaceae); Aras boundary, September 2006 on *Plantago* sp. (Plantaginaceae); Ahar, July 2007 on *Beta vulgaris* (Chenopodiaceae); Kalibar, July 2008 on *Brassica campestris* (Brassicaceae).

Distribution: Virtually worldwide; Afghanistan, Algeria, Andaman and Nicobar Islands, Argentina, Australia, Barbados, Brazil, Cameroon, Canary Island, Chile, Caroline Islands, Central African Republic, Chad, China, Colombia, Congo, Cuba, Cyprus, Dominican Republic, Ecuador, Egypt, El Salvador, England, Ethiopia, Fiji, France, French Guiana, Guadeloupe, Haiti, Honduras, Gabon, Gambia, Ghana, Greece, Grenada, Guatemala, Guam, Guyana, Hawaii, Hong Kong, India, Iran, Iraq, Israel, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kenya, Korea, Lebanon, Liberia, Libya, Madagascar, Malaysia, Mariana Islands, Mauritius, Mexico, Mozambique, Netherlands, New Guinea, Nicaragua, Nigeria, Pakistan, Panama, Peru, Philippines, Portugal, Puerto Rico, Romania, Saipan, Saudi Arabia, Senegal, Seychelles, Singapore, Sierra Leone, South Africa, Spain, Sri Lanka, Sudan, Sumatra, Syria, Tahiti, Taiwan, Thailand, Trinidad and Tobago, Turkey, Uganda, United Kingdom, USA, Venezuela, Virgin Islands, Yemen, Zaire, Zimbabwe.

Genus *Bulgarialeurodes* Corbett 1936

Bulgarialeurodes Corbett 1936: 18. Type species: *Bulgarialeurodes rosae* Corbett 1936 (syn. *Aleurodes cotesii* Maskell 1896), by monotypy.

Bulgarialeurodes cotesii (Maskell) 1895
Aleurodes cotesii Maskell 1895: 427. Syntypes. Pakistan: on *Rosa* sp. (Rosaceae), ADSIR.
Bulgarialeurodes cotesii (Maskell); Russell 1960: 30.
Aleurodes rosae Kiriukhin 1947: 10. Syntypes. Iran: on *Rosa* spp.; synonymy according to Russell 1960: 30.
Bulgarialeurodes rosae Corbett 1936: 18. Syntypes. Bulgaria: on *Rosa damascena*; synonymy according to Russell 1960a: 30.

Material: Kalibar, August 2008 on *Rosa canina* (Rosaceae).

Distribution: Afghanistan, Bulgaria, Iran, Pakistan, Romania, Turkmenistan, USSR, Yugoslavia.

Genus *Dialeurodes* cockerel 1902

Aleyrodes (*Dialeurodes*) Cockerell 1902: 283. Type species. *Aleyrodes citri* Riley & Howard 1893, by original designation, a synomym of *A. citri* Ashmead 1885: 704.
Dialeurodes Cockerell; full genus, Quaintance and Baker 1914: 97.
Kanakarajiella David and Sundararaj 1993. Type species. *Dialeurodes vulgaris* Singh 1931, by original designation; synonymy according to Martin and Mound 2007: 28.
Lankaleurodes David 1993: 23. Type species. *Dialeurodes radiipuncta* Quaintance & Baker 1917, by original designation; synonymy according to Martin and Mound 2007: 28.
Shanthiniae David 2000, in P.M.M. David 2000: 125. Type species - *Shanthiniae sheryli* David 2000, by monotypy and original designation; synonymy according to Martin and Mound 2007: 28.
Comment: Martin and Mound (2007) tentatively listed species in the following subgenera of *Dialeurodes* as being in the genus *Dialeurodes: Dialeurodes* (*Dialeuronomada*) Quaintance and Baker 1917: 51; *Dialeurodes* (*Rabdostigma*) Quaintance and Baker 1917: 426, *Dialeurodes* (*Gigaleurodes*) Quaintance and Baker 1917: 426, and *Dialeurodes* (*Dialeuroplata*) Quaintance and Baker 1917: 435.
Dialeuronomada Quaintance and Baker; full genus by Sundararaj and David 1991.

Dialeurodes kirkaldyi (Kotinsky) 1907

Aleyrodes kirkaldyi Kotinsky 1907: 95-96. Syntypes. USA: Hawaii, on undetermined trailing shrub,
Beaumontia grandifolia, *Morinda citrifolia* (Rubiaceae) and *Jasminum grandiflorum* (Oleaceae), USNM.
Dialeurodes kirkaldyi (Kotinsky); Quaintance and Baker 1914: 98.
Dialeurodes yercaudensis Jesudasan and David 1991: 307. Holotype pupal case. India: on *Ligustrum walkeri* (Oleaceae), IDAV; synonymy according to Sundararaj and Dubey 2006.

Material: Khodafarin, July 2007 on *Malva sylvestris* (Malvaceae).

Distribution: Andaman and Nicobar Islands, Australia, Azores, Bahamas, Barbados, Burma, Caroline Islands, China, Cook Islands, Costa Rica, Cuba, Egypt, Fiji, Ghana, Greece, Guam, Guyana, Hawaii, Hong Kong, India, Iran, Israel, Jamaica, Japan, Lebanon, Malaysia, Mexico, Pakistan, Philippines, Puerto Rico, Samoa, Sri Lanka, Syria, Tahiti, Taiwan, Thailand, Trinidad, Turkey, UK, USA, Virgin Islands.

Genus *Parabemisia* Takahashi 1952

Parabemisia Takahashi and Mamet 1952: 21. Type species. *Parabemisia maculata* Takahashi 1952, by original designation.

Parabemisia myricae (Kuwana) 1927

Bemisia myricae Kuwana 1927: 249. Syntypes. Japan: on *Myrica rubra* (Myricaceae), *Morus alba* (Moraceae), *Citrus* spp. (Rutaceae) and other plants, TARI.
Parabemisia myricae (Kuwana); Takahashi 1952: 24.

Material: Khomarloo, September 2007 on *Lantana camara* (Verbenaceae).

Distribution: China, Egypt, Hawaii, India, Iran, Israel, Italy, Japan, Morocco, Spain, Taiwan, Turkey, USA, Venezuela.

Genus *Siphoninus* Silvestri 1915

Siphoninus Silvestri 1915: 245. Type species: *Siphoninus finitimus* Silvestri 1915, regarded by Mound and Halsey 1978: 191 as synonym of *S. phillyreae*, by original designation.

Siphoninus immaculatus (Heeger) 1856

Aleurodes immaculatus Heeger 1856: 33. Syntypes. Germany? On *Hedera helix* (Araliaceae).
Aleurochiton immaculatus (Heeger); Quaintance and Baker 1914: 105.
Trialeurodes immaculatus (Heeger); Quaintance and Baker 1915.
Siphoninus immaculatus (Heeger); Trehan 1940: 601.
Aleurodes immaculatus Heeger 1856: 33. Syntypes. Germany? On *Hedera helix*.
Siphoninus heegeri Haupt 1935: 259; synonymy according to Zahradnik 1963: 9.

Material: Khodafarin, August 2008 on *Fraxinus* sp. (Oleaceae).

Distribution: Austria, Czech Republic, England, Germany, Hungary, Iran, Italy, Sweden, USSR.

***Siphoninus phillyreae* (Haliday) 1835**

Aleurodes phillyreae Haliday 1835: 119. Syntypes. Ireland: on *Phillyrea latifolia* (Oleaceae), HAL.
Trialeurodes phillyreae (Haliday); Quaintance and Baker 1915.
Siphoninus phillyreae (Haliday); Silvestri 1915: 247.
Siphoninus phillyreae inequalis Goux 1949: 11. Syntypes. France: on pear [*Pyrus* sp. (Rosaceae)].
Siphoninus phillyreae mulititubulatus Goux 1949: 11. Syntypes. Corsica: on *Olea europea* (Oleaceae).
Siphoninus phillyreae mulititubulatus Goux; Mound and Halsey 1978: 192.
Aleurodes dubia Heeger 1859: 223. Syntypes, Germany?, on *Fraxinus* sp. (Oleaceae); Frauenfeld 1867: 796.
Aleurochiton dubius (Heeger); Quaintance and Baker 1914: 105.
Siphoninus dubiosa Haupt 1935: 259; synonymy according to Zahradnik 1963: 9.
Aleurodes phylliceae Bouche 1851: 110. Syntypes. Southern Europe: on *Phillyrea latifolia*? (Oleaceae) .
Aleurodes phylliceae Bouche 1851; Frauenfeld 1867: 786.
Asterochiton phillyreae (Haliday); Quaintance and Baker 1914: 105.
Siphoninus finitimus Silvestri 1915: 245. Syntypes. Eritrea: on *Olea chrysophylla* (Oleaceae), IESP.
Siphoninus finitimus Silvestri; Mound and Halsey 1978: 192.
Siphoninus granati Priesner and Hosny 1932: 1. Syntypes. Egypt: Meadi, 16.viii.1931, Priesner and Hosny, on *Punica granatum* (Punicaceae), EDAC.
Siphoninus granati Priesner and Hosny; Mound and Halsey 1978: 192.
Trialeurodes inaequalis Gautier 1923: 339. Syntypes. France: on *Pyrus* sp. (Rosaceae); synonymy according to Mound and Halsey 1978: 192.

Material: Khodafarin, September 2006, on *Malus communis* (Rosaceae).

Distribution: Australia, Bulgaria, Cameroon, Corsica, Cyprus, England, Egypt, Eritrea, Ethiopia, Finland, France, Germany, Greece, Hungary, Iran, Ireland, Israel, Italy, Java, Jordan, Mexico, Peru, Spain, Sudan, Syria, Taiwan, USA, USSR, Venezuela, Yugoslavia, Zaire.

Genus *Tetralicia* Harrison 1917

Tetralicia Harrison 1917: 60. Type species. *Tetralicia ericae* Harrison 1917, by monotypy.

***Tetralicia ericae* Harrison 1917**

Tetralicia ericae Harrison 1917: 61. Syntypes. England: on *Erica tetralix* (Ericaceae), BMNH; Bink-Moenen 1976.

Material: Khodafarin, September 2007 on *Erica* sp. (Ericaceae). New record for Iran.

Distribution: Austria, Czech Republic, England, Italy, Netherlands, Sweden, Scotland, USSR, Wales.

Genus *Trialeurodes* Cockerell 1902

Aleyrodes (*Trialeurodes*) Cockerell 1902: 283. Type species. *Aleurodes pergandei* Quaintance 1900, by original designation.
Trialeurodes Cockerell; full genus by Quaintance and Baker 1915.
Aleyrodes (*Asterochiton*) Maskell; misidentification; Kirkaldy 1907: 43; Quaintance and Baker 1914: 104.
Aleurodes (*Ogivaleurodes*) Goux 1948: 31. Types species. *Aleurodes lauri*, by monotypy; synonymy according to Mound and Halsey 1978: 205.
Gymnaleurodes Sampson and Drews 1940: 29. Types species. *Gymnaleurodes bellissima*, by monotypy; synonymy according to Sampson 1943: 209.

***Trialeurodes ericae* Bink-Moenen 1976**

Trialeurodes ericae Bink-Moenen 1976: 17. Holotype. The Netherlands: on *Erica tetralix* (Ericaceae), NHM (Rapisarda 1986: 497); Bink-Moenen 1989: 176.
Trialeurodes (*Ericaleyrodes*) *ericae* Bink-Moenen; Rapisarda 1986: 490.

Material: Ahar, August 2008 on *Erica* sp. (Ericaceae). New record for Iran.

Distribution: Crete, Corsica, France, Majorca, Netherlands, Spain.

***Trialeurodes lauri* (Signoret) 1882**

Aleurodes lauri Signoret 1882: CLVIII. Syntypes. Greece: Athens (Grenadius), on *Laurus nobilis* (Lauraceae).
Aleuroparadoxus lauri (Signoret); Silvestri 1934: 399.
Trialeurodes lauri (Signoret); Russell 1947: 6.
Aleyrodes (*Ogivaleurodes*) *lauri* (Signoret); Goux 1948: 31.
Ogivaleurodes lauri (Signoret); Goux 1951: 12.
Trialeurodes lauri (Signoret); Zahradnick 1963: 232.
Trialeurodes klemmi Takahashi 1940: 148. Syntypes. Yugoslavia: Rab, on *Laurus nobilis*; synonymy according to Russell 1947: 6.

Material: Kalibar, October 2007 on *Laurus nobilis* (Lauraceae).

Distribution: Australia, Belgium, Cyprus, France, Greece, Iran, Israel, Italy, Lebanon, Luxembourg, Switzerland, Turkey, USSR, Yugoslavia.

***Trialeurodes ricini* (Misra) 1924**

Aleyrodes ricini Misra 1924: 131. Syntypes. India: on *Ricinus communis* (Euphorbiaceae), USNM. *Trialeurodes ricini* (Misra); Singh 1931: 46.
Trialeurodes rara Singh 1931: 47. Syntypes. India, on *Breynia* sp. (Euphorbiaceae); synonymy according to Bink-Moenen 1983: 185.
Trialeurodes desmodii Corbett 1935c: 243. Syntypes. Sierra Leone, on *Desmodium lasiocarpum* (Fabaceae), BMNH; synonymy [with *T. rara*] according to Mound & Halsey 1978: 217.
Trialeurodes lubia El Khidir & Khalifa 1962: 47. Holotype. Sudan: on *Dolichos lablab* (Fabaceae); synonymy with *T. rara* according to Mound 1965: 157.

Material: Kalibar, July 2006 on *Ipomoea* sp. (Convolvulaceae).

Distribution: Andaman and Nicobar Islands, Cambodia, Cameroon, Central African Republic, Chad, India, Iran, Israel, Ivory Coast, Gabon, Madagascar, Malaya, Malaysia, Nigeria, Pakistan, Sierra Leon, Saudi Arabia, Sri Lanka, Sudan, Thailand, Turkey, Uganda, Zaire, Zimbabwe.

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

Aleurodes vaporariorum Westwood 1856: 852. Syntypes. England: on *Gonolobus* sp. (Asclepiadaceae), *Tecoma velutina* (Bignoniaceae), other plants, OUMNH.
Asterochiton vaporariorum (Westwood); Quaintance and Baker 1914: 105.
Trialeurodes vaporariorum (Westwood); Quaintance and Baker 1915.
Aleyrodes glacialis Bemis (misidentification in part); Bemis 1904: 518.
Asterochiton lecanioides Maskell 1879 (in part); Maskell 1879: 215. Syntypes. New Zealand: on *Pittosporum eugenioides* and *Polypodium billardieri*, ADSIR; synonymy according to Quaintance and Baker 1914: 105.
Trialeurodes mossopi Corbett 1935a: 9. Syntypes. Rhodesia: on *Phaseolus vulgaris* (Fabaceae), BMNH; synonymy according to Russell 1948: 44.
Aleurodes nicotiana Maskell 1895: 436. Syntypes. Mexico: on *Nicotiana tabacum* (Solanaceae), USNM; synonymy according to Quaintance and Baker 1914: 105.
Asterochiton papillifer Maskell 1890b: 173. Syntypes. New Zealand: on *Pittosporum eugenioides* (Pittosporaceae), ADSIR; synonymy according to Quaintance and Baker 1914: 105.
Trialeurodes sesbania Corbett 1936: 19. Syntypes. Australia: on *Sesbania tripeti* (Fabaceae), BMNH; synonymy according to Russell 1948: 44.
Aleyrodes sonchi Kotinsky 1907: 97. Syntypes. USA: Hawaii, Honolulu, on *Sonchus oleraceus* (Asteraceae), USNM; synonymy according to Baker and Moles 1923: 645.
Asterochiton sonchi (Kotinsky); Quaintance and Baker 1914: 105.
Trialeurodes sonchi (Kotinsky); Quaintance and Baker 1914: 105.

Material: Aynalo, June 2007 on *Solanum melongena* (Solanaceae); Khomarloo, September 2007 on *Cucumis sativus* (Cucurbitaceae); Aras boundary, September 2006 on *Mentha* sp. (Labiatae); Horand, October 2006 on *Cucurbita pepo* (Cucurbitaceae).

Distribution: Worldwide; Argentina, Australia, Austria, Azores, Bangladesh, Belgium, Bermuda, Brazil, Bulgaria, Canada, Canary Islands, Chile, Colombia, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, El Salvador, Ethiopia, France, Germany, Greece, Guadeloupe, Guatemala, Hawaii, Honduras, Hungary, Hong Kong, Korea, India, Indonesia, Iran, Ireland, Italy, Israel, Jamaica, Japan, Jordan, Kenya, Mexico, Netherlands, New Guinea, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Puerto Rico, Reunion, South Africa, Spain, Sri Lanka, Turkey, United Kingdom, USA, Venezuela, Zimbabwe.

Arasbaran is rather large region of northwestern Iran with various climates. Although totally 25 species were collected from this region, but surely the same surveys must be continued in this region and neighboring areas. We expect that continuing the faunistic survey in Arasbaran will be resulted to many other species and new country records.

ACKNOWLEDGEMENTS

The authors are indebted to Dr. F.M. Iaccarino (Universita degli studi di Napoli, Italy) and R. Bink-Moenen (Zuider-eng 6, 6721 HH Bennekom, The Netherlands) for invaluable helps in progress the project. We are thanks to Mr. M. Havaskary (Tehran Islamic Azad University) and Mr. Azad Ahmadi (Shahre Rey Islamic Azad University) for loaning many specimens and Mr. H. Mohebbi for determining the host plants. The research was supported by Shahre Rey Islamic Azad University and Fars Science and Research Branch.

REFERENCES

Ashmead WH (1885). The orange *Aleurodes* (*Aleurodes citri* n. sp.). Florida Dispatch 2: 704.
Bellows TS Jr, Perring TM, Gill RJ, Headrick DH (1994). Description of a species of *Bemisia* (Homoptera: Aleyrodidae). Annals of the Entomological Society of America 87: 195-206.
Bemis FE (1904). The aleyrodids or mealy-winged flies of California with reference to other American species. Proceedings of the United States National Museum 27: 471-537.
Bink-Moenen RM (1976). A new whitefly of *Erica tetralix* : *Trialeurodes ericae* sp. n. (Homoptera: Aleyrodidae). Entomol. Ber. Ams. 36: 17-19.
Bink-Moenen RM (1983). Revision of the African whiteflies (Aleyrodidae). Monograficen van de Nederlandse Entomologisclie Vercniging, Amsterdam 10: 1-211.

Bink-Moenen RM (1989). A new species and new records of European whiteflies (Homoptera: Aleyrodidae) from heathers (*Erica* spp.). Entomologist's Gazette 40(2): 173-181.
Bink-Moenen RM (1992). Whitefly from mediterranean evergreen oaks (Homoptera: Aleyrodidae). Syst. Entomol. 17(1): 21-40.
Bink-Moenen RM, Gerling D (1991). Aleyrodidae of Israel. Bollettino del Laboratorio di Entomologia Agraria 'Fillipo Silvestri' 47: 3-49.
Bondar G (1928). Aleyrodideos do Brasil (2a contribuicao). Bolm. Labpath. Veg. Est. Bahia. 5: 1-37.
Bouche J Fr (1851). Beschreibung zwei neuer Arten der Gattung
Bouche J Fr (1851). Beschreibung zwei neuer Arten der Gattung *Aleurodes*. Stettin Entomol. Ztg. 12: 108-110.
Campbell BC, Steffen-Campbell JD, Gill RJ (1994). Evolutionary origin of whiteflies (Hemiptera: Sternorrhyncha: Aleyrodidae) inferred from 18S rDNA sequences. Insect Mol. Biol. 3(2):73-88.
Carver M, Reid IA (1996). Aleyrodidae (Hemiptera: Sternorrhyncha) of Australia. Systematic catalogue, host-plant spectra, distribution, natural enemies and biological control. Technical Paper, Division of Entomology, Commonwealth Scientific and Industrial Research Organization, Canberra 37: 55
Cockerell TDA (1902). The classification of the Aleyrodidae. Proceedings on the Academy of Natural Sciences of Philadelphia 54: 279-283.
Cohic F (1968). Contribution a' l'etude des aleurodes africains (4' Note). Cah. Off. Rech. Sci. Tech. Outre-Mer (Biologie) 6: 63-143.
Corbett GH (1926). Contribution towards our knowledge of the Aleyrodidae of Ceylon. Bull. Entomol. Res. 16: 267-284.
Corbett GH (1935a). Three new aleurodids (Hem.). Stylops 4: 8-10.
Corbett GH (1935b). Malayan Aleurodidae. Journal of Federated Malay States Museums 17: 722-852.
Corbett GH (1935c). On new Aleurodidae (Hem.). Annals and Magazine of Natural History (10) 16: 240-252.
Corbett GH (1936). New Aleurodidae (Hem.). Proceedings of the Royal Entomological Society of London (B) 5: 18-22.
Costa Lima AD (1942). Sobre aleirodideos do genero ' *Aleurothrixus*' (Homoptera). Revista Brasileira de Biologia. 2:419-426.
Danzig EM (1964). The whiteflies (Homoptera: Alevrodoidea) of the Caucasus. Entomologicheskoe Obozrenie 43: 633-646. [English translation in Entomological Review. Washington 43: 325-330.]
Danzig EM (1966). The whiteflies (Homoptera: Aleyrodoidea) of the southern Primor'ye (Soviet Far East). Entomologicheskoe Obozrenie 45: 364-386. (English translation in Entomological Review. Washington 45: 197-209.]
Danzig EM (2004). *Aleyrodes borchsenii* Danzig, 1966 is a junior synonym of *A*. *lonicerae* Walker, 1852 (Homoptera, Aleyrodidae). Zoosystematica Rossica 13: 114.
David BV (1993). The whitefly of Sri Lanka (Homoptera: Aleyrodidae). Frederick Institute of Plant Protection and Toxicology, Entomology Series 3: 1-32.
David PMM (2000). Three new genera of whiteflies *Mohanasundaramiella*, *Shanthiniae* and *Vasantharajiella* (Aleyrodidae: Homoptera) from India. J. Bombay Nat. Hist. Soc. 97(1): 123-130.
David BV, Subramaniam TR (1976). Studies on some Indian Aleyrodidae. Record of Zoological Survey of India 70: 133-233.
David BV, Sundararaj R (1993). Studies on Dialeurodini (Aleyrodidae: Homoptera) of India: *Kanakarajiella* gen. nov. J. Entomol. Res. 17(4): 289-295.
De Barro PJ, Trueman JWH, Frohlich DR (2005). *Bemisia argentifolii* is a race of *B. tabaci* (Hemiptera: Aleyrodidae): the molecular genetic differentiation of *B. tabaci* populations around the world. Bull. Entomol. Res. 95: 193-203.
Douglas JW (1888). Description of new species of Aleurodes, *Aleurodes ribium*. Entomologist's Monthly Magazine 24: 265-267.
Douglas JW (1891). A new species of *Aleurodes*? Entomologist's Monthly Magazine 27: 200.
Douglas JW (1894). A new species of *Aleurodes. Aleurodes spireae*. Entomologist's Monthly Magazine 30: 73-74.
El Khidir E, Khalifa A (1962). A new aleyrodid from the Sudan. Proceedings of the Royal Entomological Society of London (B) 31: 47-51.
Evans G (2007). Last modified November 28, 2007 Online: The whiteflies of the world and their host plants and natural enemies. Version 2007-11-28, (http://www.sel.barc.usda.gov:591/1WF/whitefly _ catalog.htm)
Frappa C (1938). Description de *Bemisia manihotis*, n. sp. (Hem. Hom. Aleyrodidae) nuisible au manioc à Madagascar. Bulletin de la Société Entomologique de France 43: 30-32.
Frappa C (1939). Note sur une nouvelle espèce d'aleurode nuisible aux plantations de tabac de la Tsiribihina. Bulletin Économique Trimest. de Madagascar 16: 254-259.
Frauenfeld GR (1867). Zoologische Miscellen XIII. Ueber Aleurodes und Thrips, vorzüglich im Warmhause. Verhandlungen der Zoologische-Botanischen Gesellschaft in Wien 17: 793-800.
Gautier C (1923). Un aleurode parasite du poirier et du trêne *Trialeurodes inaequalis* n. sp. (Hém. Aleurodidae). Annales de la Société Entomologique de France 91: 337-350
Gennadius P (1889). Disease of tobacco plantations in Trikonia. The aleurodi of tobacco. (In Greek). Ellenike Georgia 5: 1-3.
Gerling D (1990). Whiteflies: their bionomics, pest status and management. Wimborne, U.K. Intercept, 348 pp.
Gomez-Menor J (1945). Aleurodidos de interes agricola. Boln. Patol. Veg. Entomol. Agric. 13: 161-198.
Goux L (1940). Contribution a 1'etude des aleurodes (Hem.: Aleyrodidae) de la France II. Description de deux especes nouvelles de Marseille. Bulletin de la Societe Entomologii]ue de France 45: 45-48.
Goux L (1948). Contribution à l'étude des aleurodes (Hem. Aleyrodidae) de la France V. L'aleurode du laurier sauce (*Laurus nobilis* L.). Annales de la Société d'Histoire Naturelle de Toulon 2: 30-34.
Goux L (1949). Contribution a l'etude des aleurodes (Hem.: Aleyrodidae) de la France. VI. Le genre *Siphoninus* Silvestri. Bull. Mens. Soc. Linn. Lyon N.S. 18: 7-12.
Goux L (1988). Aleurodes de France - VII. Description de deux especes nouvelles constituant des genres nouveaux. Bulletin de la Societe Linnccnne de Provence 39: 63-66.
Habib A, Farag FA (1970). Studies on nine common aleurodids of Egypt. Bulletin de la Societe Entomologique d'Egypte 54: l-41.
Haliday AH (1835). *Aleyrodes phillyreae*. Entomol. Mag. 2: 119-120.
Harrison JWH (1917). New and rare British Aleurodidae. Entomologist 53: 255-257.
Harrison JWH (1920). Notes and records. Aleyrodidae. Vasculum 6: 59.
Haupt H (1934). Neues uber die Homoptera - Aleurodina. Dentsche Entomologisclie Zeitschrift. Berlin 1934, pp. 127-141.
Haupt H (1935). Schmetterlings - od. Mottenlause, Aleurodina. in Die Tienuelt Mitteleuropas 4: 253-260.
Heeger E (1856). Beitrage zur Naturgeschichte der Insecten. Naturgeschichte der *Aleurodes immaculata* Steph. Sitziingberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisclie-natuncissensc Jiaftliche klasse. Wien 18: 33-36.
Heeger E (1859). Beitrage zur Naturgeschichte der Insecten. Naturgeschichte der *Aleyrodes dubia* Stephens. Sitzungberichte der Kaiserlichen Akademie der Wissenschaften. Mathematische-naturwissenschaftliche klasse. Wien 24: 223-226.
Hempel A (1899). Descriptions of three new species of Aleurodidae from Brazil. Psyche. Cambridge (Massachusetts) 8: 394-395.
Hempel A (1901). A preliminary report on some new Brazilian Hemiptera. Annals and Magazine of Natural History 8: 383–391.
Iaccarino FM (1982). Descrizione di *Aleitroviggvinus adrianae*, n. gen, n. sp. (Homoptera: Alevrodidae). Bollettino del laboratorio di Entoir.ologia Agraria 'Filippo Silvestri' 39: 37-45.
Iaccarino FM (1990). Description of *Paraleyrodes minei* n. sp. (Homoptera: Aleyrodidae), a new aleyrodid of citrus, in Syria. Bollettino del Laboratorio di Entomologia Agraria 'Filippo Silvestri' 46: 131-149.
Jesudasan RWA, David BV (1990). Revision of two whitefly genera, *Aleuroclava* Singh and *Aleurotuberculatus* Takahashi (Homoptera: Aleyrodidae). Frederick Institute of Plant Protection and Toxicology, Entomological Series 2: 1-13.
Jesudasan RWA, David BV (1991). Taxonomic studies on Indian Aleyrodidae (Insecta: Homoptera). Oriental Insects 25: 231-434.
Kiriukhin G (1947). Quelques Aleurododea de l'Iran. Entomologie Phytopath. Appl. 5: 8-10 (In Persian, 5: 22-28; French summary).

Kirkaldy GW (1907). A catalogue of the hemipterous family Aleyrodidae. Bull. Bd Commnrs Agric. For. Hawaii Div. Entomol. 2: 1-92.
Koch CL (1857). Die Pflanzenlaüse Aphiden. Nürnberg, p.330
Kotinsky J (1907). Aleyrodidae of Hawaii and Fiji with descriptions of new species. Bulletin. Board of Commisioners of Agriculture and Forestry, Hawaii, Division of Entomology 2: 93-102.
Künow G (1880). Zweineue Schildlaüse. Entomologische Nachrichten. Berlin 6: 46-47.
Kuwana I (1927). On the genus *Bemisia* (Family Aleyrodidae) found in Japan, with description of a new species. Annotationes zoologicae japonensis 11: 245-253.
Latreille PA (1796). Précis des charactères génériques des insectes, disposés dans un ordre naturel. Brive p.201
Latreille PA (1807). Genera Crustaceorum et Insectorum. Paris, 4 volumes.
Linnaeus C (1758). Systema Naturae. Uppsala, p. 824.
Löw F (1867). Zoologische Notizen Zweite Serie. Verhandlungen der Zoologische-Botanischen Gesellschaft in Wien 17: 745–752.
Manzari Sh and Quicke DLJ (2006). A cladistic analysis of whiteflies, subfamily Aleyrodinae (Hemiptera: Sternorrhyncha: Aleyrodidae). J. Nat. Hist. 40: 2423-2554.
Martin JH (1985). The Whitefly of the Guinea (Homoptera: Aleyrodidae). Bull. Br. Mus. Nat. Hist. 50 (3): 303-351.
Martin JH (1996). Neotropical whiteflies of the subfamily Aleurodicinae established in the western Palaearctic (Homoptera: Aleyrodidae). Journal of Natural History 30(12): 1849-1859.
Martin JH (1999). The whitefly fauna of Australia (Sternorrhyncha: Aleyrodidae), a taxonomic account and identification guide. Technical Paper, CSIRO Entomology 38: 1-197.
Martin JH (2005). Whiteflies of Belize (Hemiptera, Aleyrodidae). Part 2-introduction and account of the subfamily Aleyroinae Westwood. Zootaxa 1098: 1-116.
Martin JH, Mifsud D, Rapisarda C (2000). The whiteflies (Hemiptera: Aleyrodidae) of Europe and the Mediterranean Basin. Bulletin of Entomological Research 90(5): 407-448.
Martin JH, Mound LA (2007). An annotated check list of whiteflies (Insecta: Hemiptera: Aleyrodidae). Zootaxa 1492: 1-84.
Maskell, WM (1879). On some Coccidae in New Zealand. Transactions and Proceedings of the New Zealand Institute, 11:187-228.
Maskell MW (1890). On some Aleyrodidae from New Zealand and Fiji. Transactions and Proceedings of the New Zealand Institute (1889) 22: 170-176.
Maskell WM (1895). Contributions towards a monograf of Aleurodidae, a family of Hemiptera-Homoptera. Trans. Proc. N. Z. Inst. 28: 411-449.
Maskell WM (1896). *Aleurodes eugeniae*, a new species of bug. Indian Museum Notes 4: 52-53.
Meganathan P, David BV (1994). Aleyrodidae fauna (Aleyrodidae: Homoptera) of Silent valley, A tropical evergreen rain-forest, in Kerala, India. FIPPAT Entomological Series 5: 1-66.
Misra CS (1924). The citrus whitefly, *Dialeurodes citri* in India and its parasite, together with the life history of *Aleurodes ricini*, n. sp. Report of Proceedings of Entomological Meetings at Pusa 1923, 129-135.
Misra CS, Singh KL (1929). The cotton whitefly (*Bemisia gossypiperda* n. sp.). Bulletin of the Agricultural Research Institute Pusa 196: 1-7.
Mound LA (1965). An introduction to the Aleyrodidae of Western Africa (Homoptera). Bull. Br. Mus. Nat. Hist. 17: 113-160.
Mound LA (1966). A revision of the British Aleyrodidae (Hemiptera: Homoptera) Bull. Br. Mus. Nat. Hist. 17: 397-428.
Mound LA, Halsey SH (1978). Whitefly of the world. 340 pp. British Museum (Natural History)/John Wiley & Sons, Chichester.
Mound LA, Martin JH, Polaszek A (1994). The insect fauna of *Selaginella* (Pteridophyta: Lycopsida), with descriptions of three new species. J. Nat. Hist. 28: 1403-1415.
Ossiannilsson F (1955). Till Kannedomem om de svenska mjollossen (Hemiptera: Homoptera: Aleyrodina). Opusc. Entomol. 20: 192-199.
Priesner H, Hosny M (1932). Contributions to a knowledge of the whiteflies (Aleurodidae) of Egypt (I). Bulletin. Ministry of Agriculture, Egypt. Technical and Scientific Service 121: 1-8.
Priesner H, Hosny M (1934). Contributions to a knowledge of the whiteflies (Aleurodidae) of Egypt (II). Bulletin. Ministry of Agriculture, Egypt. Technical and Scientific Service 139: 1-21.
Quaintance AL (1900). Contribution towards a monograph of the American Aleurodidae. Technical Series, US Department of Agriculture Bureau of Entomology 8: 9-64.
Quaintance AL (1903). New oriental Aleurodidae. Canadian Entomologist 35: 61-64.
Quaintance AL (1907). The more important Aleyrodidae infesting economics plants, with description of a new species infesting the orange. U.S.D.A. Bur. Entomol. Tech. Ser. 12: 89-94.
Quaintance AL (1909). A new genus of Aleyrodidae, with remarks on *Aleyrodes nubifera* Berger and *Aleyrodes citri* Riley & Howard. Technical Series, US Department of Agriculture Bureau of Entomology 12: 169-174.
Quaintance AL, Baker AC (1914). Classification of the Aleyrodidae Part II. Technical Series, US Department of Agriculture Bureau of Entomology 27: 95-109.
Quaintance AL, Baker AC (1915). Classification of the Aleyrodidae - contents and index. Technical Series, US Department of Agriculture Bureau of Entomology 27: i-xi, 111-114.
Quaintance AL, Baker AC (1917). Contribution to our knowledge of the whiteflies of the subfamily Aleyrodinae (Aleyrodidae). Proceedings of the United States National Museum 51: 335-445.
Rapisarda C (1986). *Trialeurodes* (*Ericaleyrodes*) *sardiniae*, subgen. n., sp. n.: a new heather-feeding whitefly (Homoptera, Aleyrodidae). Frustula entomologica, nuova serie 7-8 (1984-85): 487-499.
Regu K, David BV (1993). Taxonomic studies on Indian Aleyrodids of the tribe Aleurolobini (Aleyrodidae: Homoptera). Frederick Institute of Plant Protection & Technology (FIPPAT), Entomological Series 4: 1-79.
Riley CV, Howard LO (1893). The orange Aleyrodes. (*Aleyrodes citri* n. sp.). Insect Life. US Department of Agriculture, Washington DC 5: 219-226.
Russell LM (1947). A classification of the whiteflies of the new Tribe Trialeurodini (Homoptera: Aleyrodidae). Revista de Entomologia. Rio de Janeiro 18: 1-44.
Russell LM (1948). The North American species of whiteflies of the genus *Trialeurodes*. Miscellaneous Publications.United States Department of Agriculture 635: 1-85.
Russell LM (1962). New name combinations and notes on some African and Asian species of Aleyrodidae (Homoptera). Bull. Brooklyn Entomol. Soc. 57: 63-65.
Russell LM (1957). Synonyms of *Bemisia tabaci* (Gennadius) (Homoptera, Aleyrodidae). Bull. Brooklyn Entomol. Soc. 52: 122-123.
Russell LM (1960). A whitefly living on roses (Homoptera: Alevrodidae). Proceedings of the Royal Entomological Society of London (B) 29: 29-32.
Sampson WW (1943). A generic synopsis of the Hemipterous Superfamily Aleyrdoidea. Entomol. Am. 23: 173-223.
Sampson WW, Drews EA (1940). *Gymnaleurodes,* a new genus of Aleyrodidae from California (Homoptera). Pan-Pacif. Entomol. 16: 29-30.
Sampson WW, Drews EA (1941). Fauna Mexicana IV. A review of the Aleyrodidae of Mexico (Insecta, Homoptera). An. Esc. Cienc. Biol. Mex. 2: 143-189.
Schlee D (1970). Verwandtschaftsforschung an fossilen und rezenten Aleyrodina (Insecta: Hemiptera). Stuttgarter Beitrage zur Natiirkunde aus dem Sfaatlichen Museum filr Naturkunde in Stuttgart 213: 1-72.
Schrank FP von (1801). Fauan Bioca. Ingolstadt 2(1): 147.
Signoret V (1868). Essai monographique sur les aleurodes. Annls. Soc. Entomol. Fr. (4) 8: 369-402.
Signoret V (1868). Essai monographique sur les aleurodes. Annls. Soc. Entomol. Fr. (4) 8: 369-402.
Signoret V (1882). Séance du 14 décembre 1881. 4o Note. Annales de la Société Entomologique de France, 1, CLVIII.
Silvestri F (1911). Di una nuova specie di *Aleurodes* vivente sull' Olivo. Boll. Lab. Zool. gen. Agr. R. Scuola Agric. Portici 5: 214-225.
Silvestri F (1915). Contributo alla conoscenza degli insetti dell' Áolivo dell' Eritrea e dell' Africa meridionale. Fam. Aleyrodidae. Boll. Lab. Zool. gen. agrar. R. Scuola Agric. Portici 9: 245-249.
Silvestri F (1934). Compendio di entomologia applicata 1. Portici, p.448
Singh K 1931). A contribution towards our knowledge of the Aleyrodidae (whiteflies) of India. Memoirs of the Department of Agriculture in India12: 1-98.

Sundararaj R, David BV (1991). Ten new species of *Dialeuronomada* Quaintance & Baker (Homoptera: Aleyrodidae) from India. Hexapoda 3: 27-47.
Sundararaj R, Dubey AK (2004). The whitefly genus *Martiniella* Jesudasan and David (Aleyrodidae: Hemiptera), with description of one new species from India. Entomol. 29(4): 357-360.
Sundararaj R, Dubey AK (2006). A review of the whitefly genus *Dialeurodes* Cockerell (Aleyrodidae: Hemiptera) with description of two new species from India. Journal of the Bombay Natural History Society 103(1): 62-67.
Takahashi R (1931). Some whiteflies from Formosa. (Part I). Trans. Nat. Hist. Soc. Formosa 21: 203-209.
Takahashi R (1932). Aleyrodidae of Formosa, Part I. Report. Department of Agriculture. Government Research Institute. Formosa 59: 1-57.
Takahashi R (1933). Aleyrodidae of Formosa, Part II. Report of the Department of Agriculture of the Government Research Institute, Formosa 60: 1-24.
Takahashi R (1934). Aleyrodidae of Formosa, Part III. Rep. Dep. Agric. Govt. Res. Inst. Formosa 63: 39-71.
Takahashi R (1936). Some Aleyrodidae, Aphididae, Coccidae (Homoptera), and Thysanoptera from Micronesia. Tenthredo 1: 109-120.
Takahashi R (1938). A few Aleyrodidae from Maritius and China (Hemiptera). Trans. Nat. Hist. Soc. Formosa 28: 27-29.
Takahashi R (1940). A new species of Aleyrodidae from Jugoslavia. Arb. rnorp. taxon. Entomol. Berl. 7: 148-149.
Takahashi R (1951a). Some species of Aleyrodidae (Homoptera) from from Madagascar, with a species from Mauritius. Memoires de l'lnstitiit Scientificfiie de Madagascar (A) 6: 353-385.
Takahashi R (1951b). Description of six interesting species of Aleyrodidae from Malaya (Homoptera). Kontyu 19: 1-8.
Takahashi R (1952). *Aleurotuberculatus* and *Parabemisia* of Japan (Aleyrodidae: Homoptera). Misc. Rep. Res. Inst. Nat. Res. Tokyo 25: 17-24.
Takahashi R (1957). Some Aleyrodidae from Japan (Homoptera). Insecta Matsumurana 21: 12–21.
Takahashi R, Mamet R (1952). Some species of Aleyrodidae from Madagascar (Homoptera) II. Mem. Inst. Scient. Madagascar (E) 1: 111-133.
Trehan KN (1939). Studies on the British Aleurodidae. Current Science 8: 266.
Trehan KN (1940). Studies on the British whiteflies (Homoptera: Aleyrodidae). Transactions of the Royal Entomological Society of London 90: 575-616.
Visnya A (1941). Vorarbeiten zur Kenntnis der Aleurodiden-Fauna von Ungarn, nebst systematischen Bemerkungen uber die Gattungen Aleurochiton, *Pealius* und *Bemisia* (Homoptera). Fragmenta Faunistica Hungarica. 4 (Suppl) 1-19.
Walker F (1852). List of the specimens of Homopterous insects in the collection of the British Museum. Supplement. pp. 369 London. 4: 909-1188.
Westwood JO (1840). An introduction to the modern classification of insects; founded on the natural habits and corresponding organization of different families. Longman, Orme, Brown and Green. London. p. 587
Westwood JO (1856). The new *Aleyrodes* of the greenhouse. Gardeners' Chronicle 1856: 852.
Zahradnik J (1956). Trois nouvelles especes des aleyrodides pour la faune tchecoslovaque. Sb. faun. Praci Entomol. Odd. Nar. Mus. Praze 1: 43-45.
Zahradnik J (1961). Nouvelles connaissances faunistiques et taxonomiques sur les aleyrodides de la Tchecoslovaquie (Homoptera, Aleyrodinea). Acta Faunistica Entomologica Musei Nationalis Pragae 7: 61-80.
Zahradnik J (1962). Donnees taxonomiques et faunistiques sur *Japaneyrodes* nov. gen. *similis europaeus* n. ssp. (Homoptera: Alevrodinea). Acta Faunistica Enfomologica Miisei Nationalis Pragae 8: 13-19.
Zahradnik J (1963). Aleyrodina. in Die Tiem'elt Mitteleuropas (N.S.) 4: 1-19.
Zahradnik J (1991). Taxonomisches und Faunistisches über uropäische Mottenlaüse (Aleyrodinea). Acta Universitatis Carolinae 35: 111-118.