

## AN ANNOTATED LIST OF APHIDS OF PERADENIYA CAMPUS, SRI LANKA

JAYANTHI P. EDIRISINGHE

Department of Zoology, University of Peradeniya, Peradeniya, Sri Lanka.

Correspondence: Dr. Jayanthi P. Edirisinghe, Department of Zoology, University of Peradeniya, Peradeniya, Sri Lanka.

### ABSTRACT

A list is given of 17 species of aphids with their host plants (52 plant species in 29 families) from Peradeniya campus, located in the Central Province of Sri Lanka. Nine of the aphid species had not been previously recorded from Sri Lanka. Of them, *Sitobion wikstroemiae* (Mamet) has been recorded only from Mauritius and East Africa and *Uroleucon minutus* van der Goot is considered a rare species. Two of the aphid hyperparasitoids collected: *Syrphophagus hoffert* (Hayat) and *Coagerus bouceki* Noyes & Hayat are without previous host records.

### INTRODUCTION

Aphids (Hemiptera: Aphididae) are important as plant sap feeders and mostly so as vectors that transmit viral diseases in plants. As much as 60% of the plant viruses are transmitted by aphids. About 4,000 species of aphids are known to occur in the world. Of them, about 300 species are known to be vectors of 300 different viruses, infecting about the same number of plants (Eastop, 1977).

The aphid fauna of Sri Lanka is not well known except for those occurring on crops of economic importance. The very first publication of aphids of Ceylon is by Schouteden (1905) who described 4 species of aphids collected by E. E. Green of the Botanic Gardens, Peradeniya. This work was followed by van der Goot (1918) who listed 16 species of aphids based on a collection made in 1913 and 1914 by A. Rutherford, the then Government Entomologist of Ceylon. Apart from these two records, the only other available reference to local aphids appear in the Reviews of Applied Entomology, which lists 23 species of aphids, mostly occurring on economic crops. Thus, only about 40 species of aphids have so far been documented by these three sources. In neighbouring India, 793 species of economically important aphids have been described (Gosh, 1989).

The present investigation was undertaken to identify the aphid species known to infest commonly occurring plants, mostly weeds found in Peradeniya campus, located in the Central Province of Sri Lanka at an elevation of about 600 M.

## MATERIALS AND METHODS

The study area was confined to a few selected sites in the University Park that covers a total area of about 700 hectares. From August 1988 to October 1989, the plants, mostly grasses and other weed species, a few ornamentals and plants of economic importance, were examined for aphids, aphid mummies and predators. Aphids on collection were stored in 70% ethyl alcohol and subsequently slide mounted and identified using the technique and keys of Martin (1983) and Blackman & Eastop (1984). Aphid mummies (parasitized aphids) were held in the laboratory, until parasitoid emergence. Aphid predators (adult and larval stages) that were seen feeding on aphid colonies were also collected, preserved and subsequently identified.

At the time of aphid collection the plants which harboured aphids were examined for signs of viral disease such as crumpling, curling and discolouration of leaves. The plants which harboured aphids were collected, pressed and later identified.

Representative slides and specimens of all insect species collected have been deposited in the Museum, Department of Zoology, University of Peradeniya.

## RESULTS

The following annotated list contains 17 species of aphids, collected on 52 species of plants (in 23 families) and includes 9 aphid species not previously recorded from Sri Lanka.

### \**Acyrtosiphon gossypii* Mordvilko

Collected on: *Sesbania grandiflora* (L.) Pers. (Leguminosae).

Predators: *Chelomenes sexamaculatus* (Fabricius), *Aneleis cardoni* (Weise) (Coccinellidae)

### *Aphis craccivora* Koch

Collected on: *Aeschynomene americana* L. (Leguminosae); *Brassica oleracea* L. (Cruciferae);

\*\* *Centrosema pubescens* Benth, *Crotolaria retusa* L., *Gliricidia sepium* (Jacq.) Steud., *Phaseolus lunatus* L., *Vigna cylindrica* (L.) Skeels, *Vigna unguiculata* (L.) Walp. (Leguminosae); *Breynia sp.* (Euphorbiaceae).

Predators: *Platynaspis sp* (Coccinellidae).

### *Aphis gossypii* Glover

Collected on: *Bidens pilosa* L. (Compositae); *Capsicum annum* L. (Solanaceae); *Clerodendrum serratum* (L.) Moon (Verbenaceae); *Eleutheranthera ruderalis* (SW.) Schultz., *Eupatorium odoratum* L. (Compositae); *Ficus religiosa* L. (Moraceae); *Hibiscus rosa-sinensis* L. (Malvaceae); *Ixora coccinea* L., *Ixora macrothrysa* Teijsm & Binn (Rubiaceae); *Justicia betonica* L. (Acanthaceae); *Melothria sp.*, *Momordica charantia* L. (Cucurbitaceae); *Pentas carnea* Benth. (Rubiaceae); *Psidium guajava* L. (Myrtaceae); *Tridax procumbens* L. (Compositae).

*A. gossypii* was the most common and abundant aphid collected. General body colour varies from greenish black to yellow, even within colonies on the same host plant.

Parasitoids: *Paragasa yerburiensis* Stuckenberg (Syrphidae)

*Aphis solanella* Theobald

Collected on: \*\* *Solanum nigrum* L. (Solanaceae)

*Aphis spiraecola* Patch

Collected on: *Ageratum conyzoides* L., *Bidens pilosa* L., *Crossocephalum crepidioides* (Benth.) S. Moore, *Eupatorium odoratum* L. (Compositae); *Jussiaea decurrens* DC. (Onagraceae); *Litsea* sp. (Lauraceae); \*\* *Mikania cordata* (Burm. f.) Robinson (Compositae); *Pentas carnea* (Benth.) (Rubiaceae).

Predators: *Platynaspis* sp. (Coccinellidae).

Parasitoids: *Aphidius* sp. (Braconidae)

Hyperparasitoids: *Syrphophagus hofferi* (Hayat) (Encyrtidae) *Coagerus bouceki* Noyes & Hayat (Encyrtidae)

*\*Hysteroneura setariae* (Thomsa)

Collected on: *Eleusine indica* (L.) Gaertn., *Eragrostis tenuifolia* Hochst ex Steud., *Panicum maximum* Jacq., *Paspalum dilatatum* Poir. (Graminae)

Predators: *Coptosoma variegata* (Herrich-Schaefer) (Heteroptera), *Cryptocephalus* sp. (Chrysomelidae)

Parasitoids: *Aphidius* sp. (Braconidae)

Hyperparasitoids: *Syrphophagus hofferi* (Hayat) (Encyrtidae)

*Macropsiphoniella sanborni* (Gillette)

Collected on: *Chrysanthemum indicum* L. (Compositae)

*Pentalonia nigronervosa* Coquerel

Collected on: *Alocasia* sp. (Araceae).

*\*Rhodobium porosum* (Sanderson)

Collected on: *Rosa indica* (Rosaceae)

Predators: *Coccinella transversalis* Fabricius (Coccinellidae)

*\*Rhopalosiphum padi* (Linnaeus)

Collected on: *Paspalidium flavidum* (Retz.) A. Camus (Graminae)

*\*Sitobion avenae* (Fabricius)

Collected on: *Eragrostis tenuifolia* Hochst. ex Steud., *Panicum maximum* Jacq., *Pennisetum polystachyon* L. Schultz. (Graminae)

Predators: *Coccinella transversalis* Fabricius, *Brumoides suturalis* (Fabricius), *Micraspis discolor* (Fabricius) (Coccinellidae), *Cryptocephalus* sp. (Chrysomelidae)

Parasitoids: *Aphidius* sp. (Braconidae)

*\*Sitobion miscanthi* (Takahashi)

Collected on: *Brachiaria brizantha* (Hochst. ex A. Rich.) Stapf., *Panicum repens* L. (Graminae); *Pitosporum ferrugineum* Dry. (Pitosporaceae): Unusual as this aphid species normally feeds on Graminae and Rosaceae.

Predators: *Brumoides suturalis* (Fabricius) (Coccinellidae) *Scymnus nubilus* Mulsant (Coccinellidae)

\**Sitobion wikstroemiae* (Mamet)

Collected on: *Wikstroemia indica* (L.) C. A. Mey (Thymelaeaceae). This aphid species is only known from East Africa and Mauritius (per. comm. NHM). The host plant has been introduced to Sri Lanka from East Africa and has become a weed in and around Kandy.

Predators: F: *Hemerobiidae* (Neuroptera)

\**Tinocallis kahawalokalani* (Kirkaldy)

Collected on: *Lagerstroemia* sp. (Lythraceae)

*Toxoptera aurantii* (Boyer de Fonscolombe)

Collected on: *Hamelia patens* Jacq. (Rubiaceae), *Theobroma cacao* L. (Sterculiaceae)

*Toxoptera citricidus* (Kirkaldy)

Collected on: *Citrus* sp. (Rutaceae); *Petiveria alliacea* L. (Phytolaccaceae)

\**Uroleucon minutus* van der Goot

Collected on: *Vernonia cinerea* (L.) Less. (Compositae). This aphid species though occurring on a very common weed is known to be a very rare species (per. comm. NHM)

\* Species not previously recorded from Sri Lanka.

\*\* Host plants showing signs of viral infection.

## DISCUSSION

Fourteen of the 17 aphid species that were collected, are well known vectors of viral disease. Yet, only 3 of the host plants harbouring these potential viral vectors showed symptoms of viral disease.

The present survey covering a limited area and a limited number of plants recorded 17 species of aphids of which 9 are undocumented in Sri Lanka. Similarly, the insect species predatory and parasitic on aphids, are mostly those with a limited host range. The hyperparasitoids in particular, are those without previous host records. The type specimen of the Encyrtidae *Syrphophagus hofferi* lodged in the NHM has been recorded as collected from India from 3 aphid hosts (Subba Rao & Hayat, 1986). The present record of this species from *Aphis spiraecola* on *Ageratum conyzoides* L. and *Hysteroneura setariae* on *Eragrostis tenuifolia* are therefore, new host records. Similarly, *Coagerus bouceki* is yet another parasitoid species known from the type series only, and had been collected from Malaise traps in S. India. Its host has not been known previously, nor is it known whether it is a primary or a secondary parasitoid of aphids (per. comm. NHM). Therefore, *Aphis spiraecola* represents the first host record for *C. bouceki*. Considering the richness of the aphid fauna of India numbering over 793 species (Gosh, 1989), it is very likely that many more species than what has so far been documented occur in Sri Lanka.

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**REFERENCES**

- Eastop V. F. (1977). Worldwide importance of aphids as virus vectors. In *Aphids as virus vectors*. Ed. Harris, K. F. & Maramorosch, K. Academic Press, London. 559 pp.
- Blackman, R. L. & Eastop, V. F. (1984). *Aphids on the world's crops: an identification guide*. John Wiley & Sons, New York. 446 pp
- Gosh, A. K. (1989). Zoogeography of Aphidoidea of Indian Region. *J. Aphilology* 3: 8-14
- Martin, J. H. (1983). The identification of common aphid pests of tropical agriculture. *Trop. Pest Management* 29: 395-441.
- Schouteden. H. (1905). Notes on Ceylonese aphids. *Spolia Zeylanica*. 11: 181-190.
- Subba Rao, B. R. & Hayat M. (1986). The Chalcidoidea (Insecta: Hymenoptera) of India and the adjacent countries. *Oriental Insects* 20: 130
- van der Goot P. (1918). Aphididae of Ceylon. *Spolia Zeylanica*. 11: 70-75