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Two New Species of *Norvellina* BALL from Ecuador, Suspected as Vectors of Mycoplasma-like Organisms (MLO) (Homoptera, Cicadelloidea, Cicadellidae)

With 15 Figures

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Abstract. Two new species of *Norvellina* until now, as is known, confined to North and Central America, are described from Ecuador. They were collected along with other species suspected to be vectors of MLO. At least one species of *Norvellina*, *N. seminuda* (SAY) is known as a vector of peach disease (MARAMORASCH & HARRIS, 1979).

The genus *Norvellina* BALL, of which at least one member, namely *Norvellina seminuda* (SAY) is known as a vector of eastern X-disease of peach (GILMER et al., 1966 (MARAMORASCH & HARRIS, 1979), is mainly distributed in North America (LINDSAY, 1939) but also occurs in Canada (BEIRNE, 1956) and as far south as Mexico (KRAMER & DeLONG, 1969). So far as is known, this is the first time this genus has been discovered in the Neotropical region. Two new species of *Norvellina* were found amongst the Cicadellidae submitted for identification by Dr. BERNDT of Schering Aktiengesellschaft Pharmachemie Ausland (Berlin W.). These were collected in Ecuador and were suspected to be amongst the vectors of mycoplasma-like organisms, by the above mentioned company's representative who collected them. The new species are described and illustrated in the following pages.

Norvellina BALL

BALL, 1931 2. Type species *Eutettix mildredae* BALL, 1901 46.

Norvellina musarrati sp. n. (Figs. 1–8)

Colour General coloration black and smoky but whole surface shining with ivory white markings; head, eyes dark brown, vertex black, base white in a pattern, shown in figs. 1+2, with ocelli, a short transverse spot on anterior margin of vertex, another marking next to eye, a cruciform mark on middle line of vertex and one round spot on each side on basal white fascia, ivory white; antennae smoky; face dark smoky, frons with smoky yellow seven transverse and an ill-defined central fasciae; clypeus with marginal yellow fasciae; lorae centrally yellow; genal area along eyes transversely fasciated in line with frontal fasciae but below eyes with three ill-defined longitudinal fasciae; pronotum with dark and smoky ill-defined network of transverse cells; scutellum bright yellow (fig. 1) except in some melanistic specimens (fig. 2) in which mostly smoky, with basal black triangles; tegmen translucent with veins and cells partly smoky, hindwing veins black; ventrally thorax smoky black, abdomen dorsally black, ventrally dark smoky with posterior part smoky yellow legs smoky with dark spots, especially nearer bases of tibial spines, claws black.

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Structure Vertex longer in middle than next to eye, roundedly produced, central sulcus up to half its length, about one and a half times wider at base than length of one eye; head slightly wider than pronotum; scutellum base one and a half times lateral margin; tegmen extended beyond tip of abdomen.

♂ genitalia and anal tube Pygofer tend to break off at „fracture“ while dissecting; pygofer process fine, extended beyond posterior margin of pygofer, almost at right angle to it and in continuation of its ventral margin, posterodorsal corner with 8–9 macrosetae, three groups of microsetae on its disc; subgenital plate (fig. 4), with a submarginal row of 5–6 macrosetae and marginal row of fine hairy setae, tip with transverse striations; anal tube moderately elongate with dorsal surface mostly membranous; basal plate (connective) (fig. 5) “y”-shaped with anterior arms thick and approximate, stem fine and as long as arms, paramere (style) (fig. 6) apical claw short but pointed; aedeagus (figs. 7+8) shaft and base close to each other separated by a narrow angle, shaft, straight, laterally flattened with a pair of long but not extended beyond its apex, ventrally located spines, base not unusually broad and not very much shorter compared to shaft.

♀ VIII sternum Posterior margin sinuate with a median concave depression, laterally convex.

Material examined Holotype ♂, Ecuador, Quito (altitude approximately 2,500 m), 1985 (Pronatec C. A. Ecuador), No. 1, CIE No. A. 17471. Paratypes, 1 ♂ (No. 1), 8 ♂♂ (No. 3), 9 ♀♀ (No. 1), 11 ♀♀ (No. 3), same data as for holotype ♂. In B.M. (N.H.), London.

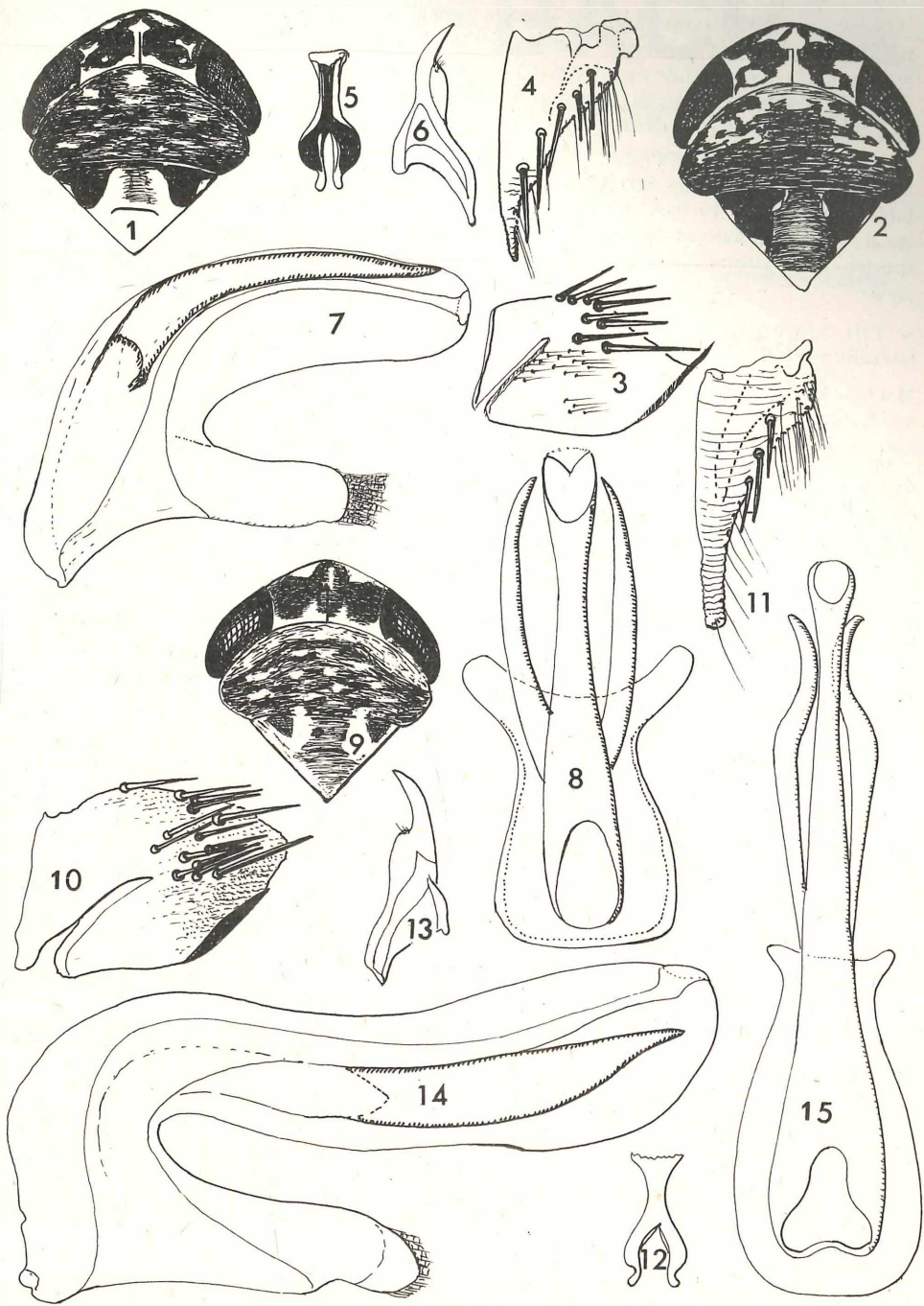
Comparative notes The shape of the aedeagus of the new species, *Norvellina musarrati* sp. n. is similar to that of *N. cincta* KRAMER & DeLONG, particularly in its ventral view (c.f. fig. 8 and fig. 19 of KRAMER & DeLONG) but viewed laterally the base of the aedeagus of the new species is much less broad (c.f. fig. 7 and fig. 18 of KRAMER & DeLONG, 1969), also the angle between the shaft and the base is much wider in *N. cincta*, the shape of pygofer process and of paramere of the two species are quite different; the shape of pygofer-process of the new species comes very close to that of *N. novica* MEDLER (1942) and *N. excavata* LINDSAY (1938 & 1939) in that the process is not less than 90° to the posterior margin of the pygofer, but from both these species it differs by the shape of its aedeagus. In the key to species (LINDSAY, 1939) the new species runs to *N. vermiculata* whose ♂ genitalia are quite different. The new species is unique in having a bright disc of scutellum.

I am pleased to name this new species in honour of my elder sister-in-law, Miss MUSARRAT KHAN GHURI, Superintendent Public Works, Karachi, as a token of my gratitude for providing moral support to my family, during her recent visit to the United Kingdom.

***Norvellina saminai* sp. n. (Figs. 9–15)**

Colour General coloration similar to *Norvellina musarrati* sp. n.; vertex with dull brown pattern as in fig. 9 on yellow surface, eyes dark reddish brown, ocelli yellow, frons with seven yellow transverse striations, clypeus, lorae and genae dull yellowish smoky; pronotum with a wide fascia along with anterior margin lighter than rest of surface, covered with irregular and ill-defined reticulation, base on posterior margin with two vague whitish spots in continuation with similarly coloured fascia from scutellum (fig. 9); scutellum dull-coloured with divisions in basal triangles and discal dark area divided by yellowish longitudinal fascia; thorax and abdomen ventrally black with margins of all segments and genitalia yellow legs lighter in colour than those of *Norvellina musarrati* sp. n.; colour of tegmen and wings similar to those of *Norvellina musarrati* sp. n.

Structures Shape of head and thorax similar to previous species, although disc of vertex slightly flattish.



Figs. 1—8. *Norvellina musarrati* sp. n. 1, head and thorax, ♂; 2, the same, of a melanistic ♂; 3, pygofer, lateral view; 4, subgenital plate (♂); 5, basal plate (♂); 6, paramere (style) (♂); 7, aedeagus, lateral view (♂); 8, the same, dorsal view (♂).
Figs. 9—15. *Norvellina saminai* sp. n. 9, head and thorax, ♂; 10, pygofer, lateral view; 11, subgenital plate; 12, basal plate; 13, paramere (style); 14, aedeagus, lateral view; 15, the same, dorsal view.

♂ genitalia Pygofer process (fig. 10) small beyond ventral margin, lying along with it internally, dorsal posterior half with 12–13 macrosetae, general surface with fine "irroration" subgenital plate (fig. 11) with 3–4 submarginal macrosetae and numerous marginal and basal microsetae, with long apex covered with transverse "wrinkles" basal plate (connective) (fig. 12) Y-shaped, anterior arms widely apart, stem short and wider at apex, compared to previous species; paramere (style) (fig. 13) with claw longer than in previous species; aedeagus (figs. 14+15), shaft sinuate wider at apex in lateral view, close to base which is relatively much shorter than in *Norvellina musarrati* sp. n., spines sinuate at their apices (fig. 15), broad in lateral view and like the previous species, not reaching apex of shaft but unlike that close to shaft better seen in ventral view

♀ VIII sternum Posterior margin almost straight, only slightly depressed in middle, laterally very shallowly concave.

Material examined Holotype ♂, Ecuador, Quito (altitude approximately 2,500 m), 1985 (Pronatec C.A. Ecuador), No. 2, CIE No. A. 174719. Paratypes, 3 ♂♂ 7 ♀♀, same data as for holotype ♂. In B.M. (N.H.), London.

Comparative notes *Norvellina saminae* sp. is unique in having sinuate shaft of its aedeagus, although in the shape of pygofer process it closely resembles *N. clavigrida* (VAN DUZEE), *N. perelegantis* (BALL) and to some extent *N. columbiana* (BALL).

The new species *N. saminae* sp. n. is named in honour of my younger sister-in-law, Doctor SAMINA SHERIN THAHIR GHAURI, whom I met first time since she was borne when I had already left Karachi, some thirty years ago.

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Correction: The first line of this page has to read completely as following:

♂ genitalia Pygofer process (fig. 10) small, not extended beyond posteroventral margin,

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