

***Phenacoccus avenae* Borchsenius (Hemiptera: Pseudococcidae) from the Netherlands and Turkey, intercepted at quarantine on bulbs, corms and rhizomes of ornamental plants**

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Abstract

Phenacoccus avenae Borchsenius, a mealybug described originally from beneath the leaf sheaths of a grass in Armenia, USSR, has been intercepted at quarantine in the Netherlands, USA and England on bulbs, corms and rhizomes of ornamental plants from Turkey. The mealybug, however, has never been recorded from Turkey although it probably exists there on monocotyledons. It is redescribed and illustrated here to facilitate identification at quarantine stations, and a list is given of its host-plants in the families Gramineae, Amaryllidaceae, Iridaceae and Liliaceae.

Introduction

In 1979, H. C. Burger of the Plantenziektenkundige Dienst, Wageningen, Netherlands, sent for identification to the Commonwealth Institute of Entomology, London, a mealybug of the genus *Phenacoccus* collected on bulbs, corms and rhizomes of various ornamental plants of importance to horticulture. Although the species may be established in the Netherlands, many specimens had been intercepted there at quarantine from Turkey. It soon became apparent that the same species had been intercepted many times at New York since 1939, and an examination of the collections of the United States National Museum showed that, although there were some interceptions from the Netherlands, most were from Turkey, and they were always on bulbs, corms and rhizomes. The species has also been taken at quarantine in England on material from Turkey.

The evidence suggests the mealybug may be present in Turkey, but it has never been recorded from there. The possibility arose that it could be *P. avenae* Borchsenius, described from Armenia on the leaf sheaths of *Avena* sp., and an examination of an original specimen, kindly made available by E. M. Danzig, of the Zoological Institute, Academy of Sciences, Leningrad, proved that this was correct.

Because the species may easily be introduced on bulbs, corms and rhizomes, it is redescribed here to help identification at quarantine stations and to list the range of host-plants. So far, at quarantine, these belong to the families Amaryllidaceae, Iridaceae and Liliaceae, but the mealybug could be intercepted on other monocotyledons.

Phenacoccus avenae Borchsenius (Fig. 1)

Phenacoccus avenae Borchsenius, 1949: 217; Ter-Grigorian, 1973: 168.

Caulococcus avenae (Borchsenius), Borchsenius, 1960: 50.

Adult female. Broadly oval, largest specimens 3.0 mm long, 2.0 mm wide, anal lobes moderately developed set fairly wide apart, each with an apical seta 180–200 μm long and a sclerotized ventral patch that is elongate, tending to be bar-like. Antennae 9-segmented 400–430 μm long. Legs well developed, hind trochanter + femur 260–280 μm long, hind tibia + tarsus 280–330 μm long, claw 25 μm long with a distinct denticle. Ratio of lengths of hind tibia + tarsus to hind trochanter + femur 1.04–1.10. Ratio of lengths of hind tibia to tarsus 2.45–2.65. Hind tibia with a few translucent pores near outer edge. Labium 110–120 μm long, shorter than clypeolabral shield. Circulus 90–110 μm wide, often produced laterally, but often distorted, although between third and fourth segments it lies well forward into third segment. Ostioles well developed, inner edges of lips sclerotized and each lip with 1–4 setae and a few trilocular pores. Anal ring with 6 setae each 95–100 μm long, only slightly longer than diameter of ring. Cerarii numbering 18 pairs. Anal lobe cerarii each with a pair of enlarged lanceolate setae 20 μm long, 3–4 minute lanceolate setae and a few trilocular pores, the area immediately around cerarian setae sclerotized. Anterior cerarii each with 2–5 trilocular pores and a pair of lanceolate setae which become smaller and more slender anteriorly, but some cerarii on head with 3 such setae, and all cerarii on small but distinct sclerotized areas.

Dorsal surface with minute lanceolate setae in moderate numbers, sometimes as short as a trilocular pore and sometimes with one or two trilocular pores near setal base. Trilocular pores evenly distributed. Oral collar tubular ducts of two sizes; a larger type, slightly wider than a trilocular pore, in more or less single rows across the segments, there being at most 7 on the anterior abdominal segments, each duct with the orifice slightly elevated from the surrounding derm giving the appearance of a narrow rim; a smaller type, narrower than a trilocular pore, forming a marginal group between the anal lobe and penultimate cerarii and a few present on margins of sixth segment. Minute discoidal pores scattered.

Ventral surface with normal flagellate setae except for minute lanceolate setae around margins. Multilocular disc pores in single to double rows at posterior edges of third and posterior segments, extending to margins on most segments and sometimes one or two present near margins of first and second segments. Trilocular pores not numerous, sparse, or absent in median areas of thorax. Quinquelocular pores in median areas only, sometimes on sixth abdominal segment and extending as far forward as clypeolabral shield but sometimes only on median areas of thorax. Minute discoidal pores sparse. Oral collar tubular ducts the same two types as on dorsum, but the larger type a little narrower than larger dorsal ducts, present singly around margins of thorax and abdomen, the smaller type across middle of third and posterior abdominal segments and in groups around abdominal margins; a few also present on thorax in median areas and margins.

Material examined. USSR: Armenia, Ayrum. Lectotype ♀, here designated, on stem of oats [*Avena* sp.], 10.vi.1947 (*N.S. Borchsenius*), in Zoological Institute, Academy of Sciences, Leningrad. TURKEY: intercepted at Netherlands, Hillegom on *Scilla bifolia* (Liliaceae), 29.viii.1966; on *Galanthus elwesii* (Amaryllidaceae), 4.x.1971; on *Galanthus* sp. 17.x.1966. Intercepted at England, on *G. elwesii*, xi.1977. Intercepted at USA, New York, on *Fritillaria* sp. (Liliaceae), on *Crocus* sp. (Iridaceae), *Scilla* sp. [*Chionodoxa*] 1.xii.1941 (*Lennox, Burke*); on *S. luciliae*, 9.ix.1964 (*Fons, Tuthill*), on *Scilla* sp., 3.vi.1940 (*Lennox, Ortiz*), 18.i.1941 (*Harley*); on *Tulipa* sp. (Liliaceae), *Leucojum* sp. (Amaryllidaceae) 10.xi.1966 (*Henningson*); on *Galanthus* sp. 24.vii.1939 (*Fox et al.*), (*Lennox, Garrett*); on *Sternbergia* sp. (Amaryllidaceae) and *Hyacinthus* sp. (Liliaceae), 10.x.1967 (*Berninger, Vaneck, Henningson*); on *H. azureus*, *Narcissus* sp. (Amaryllidaceae) 10.xi.1966 (*Henningson*); on *Galanthus* sp. 24.vii.1939 (*Fox et al.*), 31.viii.1939 (*Mann, Mills*), 29.ix.1939 (*Holloway*), 18.vii.1939 (*Friedman, Fox*), 23.vii.1940 (*Lennox, Garrett*), 30.vii.1940 (*Lennox, Ortiz*), 1.xii.1941 (*Lennox, Burke*), 6.viii.1955

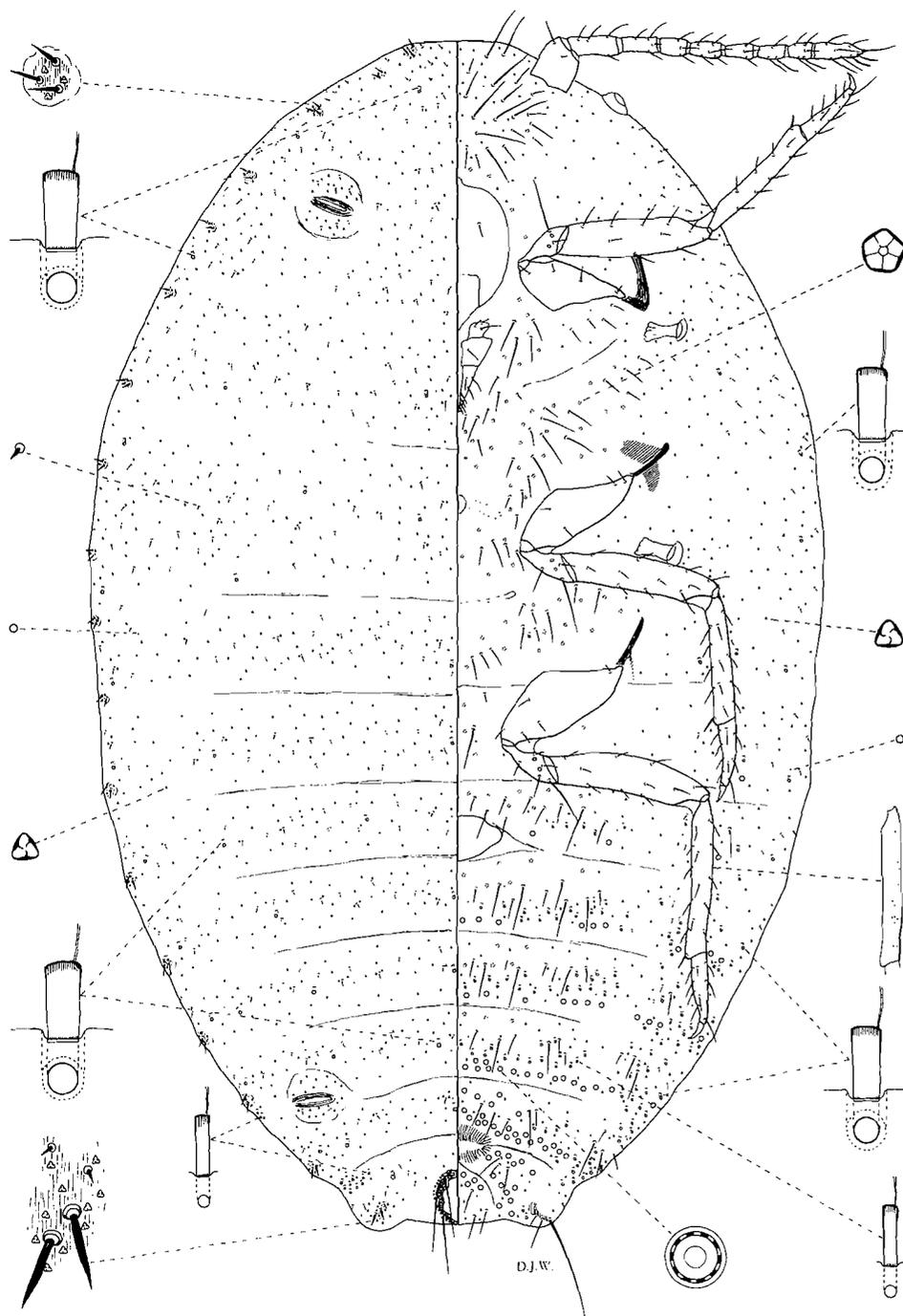


Fig. 1.—*Phenacoccus avenae* Borchsenius, The Netherlands, Hillegom, taken on *Iris* sp.

(Trafford, Turner), 24.vii.1958 (Holloway, Thompson), 28.vii.1958 (A. M. Trafford, G. J. Tallia), 30.ix.1969 (Eng, Gonzalos, Benford), 23.ix.1970 (S. Massey, P. Gerloch); on *G. elwesi*, 6.viii.1940 (Bassen et al.), 29.xi.1940 (Fox, Harley, Plummer); intercepted at Hoboken, on *Iris germanica* (Iridaceae), 23.ix.1948 (Adams). NETHERLANDS: Hillegom, on *Iris* sp., 3.v.1971; Lisse, on *Iris* sp. 16.x.1974, on *G. elwesii*, 9.ix.1955, on *Freesia* sp. (Iridaceae), 10.iii.1975; De Zilk, on *Gladiolus* sp. (Iridaceae), 28.iv.1971; Sassenheim, on *Freesia* sp., 27.viii.1975; intercepted at New York, on *Galanthus* sp. 9.ix.1939 (Bassen), 14.ix.1939 (Fox et al.), on *G. elwesii*, 31.x.1939 (Whitlock, Lennox).

Discussion. In addition to the original record, Ter-Grigorian (1973) has recorded the species on *Poa bulbosa* from Armenia, Noyemberyan region. This mealybug is very close to *Phenacoccus colemani* Ehrhorn, known from the USA and illustrated by McKenzie (1967). The multilocular disc pores reach the marginal areas of the abdomen in *P. avenae*, but they are never present on the margins in *P. colemani*. In other respects the species are extremely close.

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