

Two New Species of Milichiidae, with Miscellaneous Notes on the Family (Diptera)

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In a recent study of the dipterous family Milichiidae, two new species have been recognized and some miscellaneous notes accumulated. Revisionary work is being continued on two large genera, *Desmometopa* and *Milichiella*, but the notes presented here are not relevant to that study.

Eusiphona flava, new species

Like the genotype, *Eusiphona mira* Coq., in habitus and structural characters, but predominantly yellow.

Female.—Yellow to orange-yellow, only the arista, front, upper half or more of occiput, mesonotum except laterally, basal portion of disk of scutellum, and metanotum black in ground color; front densely pollinose and appearing golden yellow from certain aspects; mesonotum dull, yellowish-gray pollinose with a suggestion of three brown stripes, when viewed from behind; lateral yellow areas of mesonotum include the humeri and notopleural and supra-alar areas.

Head in profile as in *mira* (cf. Curran, 1934, "The Families and Genera of North American Diptera," p. 335, fig. 12), but the proboscis proportionately longer, each section 1.5 times the height of the head; wing approximately as figured by Curran (l.c., fig. 5), but the first posterior cell only slightly broadened opposite the hind crossvein, the anterior crossvein directly behind the junction of first vein with costa, and thus the penultimate section of fourth vein nearly $\frac{1}{2}$ the length of that of the third vein.

Length, 3 mm.

Holotype, Kanab, УТАН, Aug., 17, 1950 (G. F. Knowlton). Type No. 61616 in the U. S. National Museum, deposited through the courtesy of the collector.

No other species of the genus has been described since Coquillett (1897) erected it for a single species, *mira*, then presumed to belong to the Larvaevoridae (Tachinidae). The genotype is an entirely black fly and thus strikingly contrasted with the new species.

Stomosis Melander

Stomosis Melander, 1913, Jour. New York Ent. Soc. 21: 242. Type, *Desmometopa luteola* Coquillett (Monobasic.)

Siphomyiella Frey, 1919, Öfvers. finska Vetensk. Soc. Förh. 60A, no. 14, p. 16. Type, *Siphomyiella rufula* Frey (Monobasic). New synonymy.

The description and the figures of head and wing of *Siphomyiella*, described from Rio de Janeiro, Brazil, agree completely with the North American *Stomosis*. I have seen no Brazilian material of the genus, and cannot comment on the status of *Stomosis rufula* (Frey) [new combination]. The genotype, *luteola* (Coq.), was described from Williams, Arizona, has been recorded from Texas (Melander, 1913), and is known to me from Lafayette, Indiana, Falls Church and Alexandria, Virginia, and East Lansing, Michigan. At Falls Church, Virginia, April 15, 1951, it was reared from debris in the crotch of a tree (W. W. Wirth). In the U. S. National Museum there is a long series from Higuato, San Mateo, Costa Rica (Pablo Schild), which was apparently correctly determined by J. M. Aldrich as *luteola*.

Hemeromyia washingtona (Mel.)

Paramadiza washingtona Melander, 1913 (Sept.), Jour. New York Ent. Soc. 21: 246 (Washington).

Hemeromyia washingtona (Melander) Melander, 1913 (Oct.), Psyche 20: 169.

Hemeromyia nitens Melander, 1913 (Oct.), Psyche 20: 169. (Melander's statement that "*Hemeromyia nitens* Malloch" is a synonym of *washingtona* was based on the type of *nitens*, but the latter had not yet been published and the name must therefore be credited to Melander. When Malloch's paper did appear, the name was given as *nitida*.)

Hemeromyia nitida Malloch, 1913 (Dec. 6), Proc. U. S. Nat. Mus. 46: 146 (Colorado).

S. flava
see Sabr.
1958: 172

Sabrosky, 1953

As far as I am aware, only two specimens of this species have been reported, the types of *washingtona* and *nitida*. A new record of this rare species suggests that its obscure habitat is the reason why it has not been found more often. Four specimens were reared by H. B. Morlan on April 19, 1952, at Santa Fe, N. Mex., from pupae collected on March 27, 1952, in a nest of *Peromyscus truei*.

Neophyllomyza anuda (Curran), new combination

Desmometopa anuda Curran, 1936, Proc. Calif. Acad. Sci. 22 (1): 45, 46 (Anuda Island, Solomons).

Hennig (1939, Arb. über Morph. u. Taxonom. Ent. Berlin-Dahlem 6: 88) suggested that *anuda* was probably a subspecies of *Desmometopa palpalis* Meijere, but I find from a paratype kindly loaned me by Dr. Curran that the species is a *Neophyllomyza*. As now recognized, the latter is characterized by having two divaricate upper orbital bristles, and the third and fourth costal sectors equal in length. I may point out also that in the species known to me, the crossveins are approximated compared with the related genus *Phyllomyza*.

Several specimens of *anuda* are before me from Guadalcanal Island, 1944 and Jan. 28–Feb. 2, 1945 (C. O. Berg). A number of species of *Neophyllomyza* are known from Java and Formosa, but I have no material available for comparison to determine further the status or relationships of *anuda*.

COSTALIMA new genus

Near *Microsimus* Aldrich, and somewhat more distantly related to *Phyllomyza* and *Neophyllomyza*, but with two pairs of divergent upper orbitals, three pairs of strong and widely-spaced dorsocentral bristles, no prescutellar acrostichals, and a pair of strong proclinate bristles on the lunule.

Head broad and short; occiput strongly concave, viewed from above; front broad, over half the width of the head, with broad shining parafrontals and a shining frontal triangle that reaches to the lunule; eyes sparsely short haired; face concave; palpi slender, not unusually enlarged and only slightly projecting be-

yond the oral margin, approximately the same in both sexes, sparsely and finely bristled; proboscis short, fleshy, inconspicuous; antennae porrect, second and third segments subequal in length, third broader than long, subquadrate; arista pubescent; two pairs of well-separated laterocline upper orbitals and two pairs, one strong and one short slender, of convergent lower orbitals; lunule with a pair of strong, widely separated bristles that are convergent at tips; the proclinate and divergent ocellars, cruciate postverticals and divergent outer and convergent inner vertical bristles all well developed.

Thoracic chaetotaxy: Three equally strong and widely spaced dorsocentral bristles, the anterior one opposite the end of the mesonotal suture; no prescutellar acrostichals; 1 long humeral, 1 presutural, 1 + 1 notopleural (weak), 1 supra-alar (in the prealar position), 1 intra-alar, 2 postalar (the posterior much weaker than the anterior), 2 scutellar, 1 propleural and 1 stigmalta (both pale and weak, and almost hairlike), 1 sternopleural; mesopleuron bare; scutellum bare outside the bristles; mesonotal hairs sparse.

Wing similar to *Microsimus* and *Phyllomyza*, costa extending to fourth vein, and the second vein long and curving throughout its length, the third costal sector notably shorter than the fourth; crossveins well out on the disk of the wing, beyond the apex of first vein, the fore crossvein at approximately the outer two-thirds of the discal cell, and separated from the hind crossvein by approximately the length of the latter; discal cell broad distally, the hind crossvein well over twice the length of the fore crossvein.

Type of genus: *Costalima myrmicola*, new species.

The genus is dedicated to the distinguished Brazilian entomologist, Dr. A. M. da Costa Lima.

Costalima myrmicola new species

♂, ♀—Reddish yellow to brown, the intensity of color possibly depending on the maturity of the specimens; in the darkest individual, the arista black, frontal triangle, occiput and small spot at base of arista brown, mesonotum, scutellum and abdomen

dark brown, and the rest of body and legs yellow; in paler specimens the head and dorsum of thorax reddish yellow.

Head broad, its length only one-third the breadth and only slightly less than its height; width of cheek nearly three-tenths the height of an eye and half the breadth of the third antennal segment. Thoracic bristles long, strong and conspicuous except for the notopleural, supra-alar, intra-alar and posterior postalar; apical scutellar bristles long, over twice the length of the basal scutellars. Fifth abdominal segment with long and strong marginal bristles, those on the other segments ordinary.

Length, 1.5-2 mm.

Holotype female, *allotype*, and three paratypes (♂, 2♀♀), Viçosa, Minas Gerais, BRASIL, June 10, 1944, in nest of *Asteca* ant in *Cecropia* tree trunk (H. L. Parker, No. 953.20). Type No. 61617 in the U. S. National Museum.

A single female from Barro Colorado Island, PANAMA CANAL ZONE, January 1947 (N. L. H. Krauss), is similar to the above, but I am not sure whether it is *myrmicola* or represents a new but very closely related species.

Polyvinyl Alcohol with Lacto-phenol, a Mounting and Clearing Medium for Chigger Mites^{1,2}

By LOUIS J. LIPOVSKY

Polyvinyl alcohol with lacto-phenol has been used as a mounting medium for chiggers at the University of Kansas since 1947. Early preparations were made without specific attention given to the heat or the amount of heat applied to clear the medium, or to the age of the medium; however, the proportions were generally as given by Wilbur G. Downs, 1943 (*Science* 97 (2528): 539-540). These mixtures were unpredictable. Of approximately 15,000 chiggers mounted, hundreds have required re-

¹ The studies upon which this paper is based were conducted under contract, N6 ori 220 Task Order II, between the University of Kansas and the Office of Naval Research.

² Contribution number 789 from the Department of Entomology, University of Kansas.

mounting for several reasons: the medium retreated from the specimen, sometimes forming maze-like air spaces around it; not infrequently, the refractive index became unsatisfactory; following prolonged drying, the medium contracted sufficiently to fracture the cover glass over the specimen by drawing it too close to the slide. These were the most serious difficulties experienced other than some crystallization of the phenol, which can be serious when the specimen is extensively involved. These inconsistencies have been eliminated by following a standardized procedure in the preparation of the medium.

The polyvinyl alcohol (PVA) used (Grade RH-349, E. I. du Pont de Nemours Company) is a fine white powder. It is wettable in cold water but will not wet or disperse in warm or hot water. The ingredients and proportions are those given by Downs: 22 c.c. of 85 per cent lactic acid (analytical agent), 22 c.c. of pure phenol, and 56 c.c. of water saturated with PVA powder. The PVA is sifted slowly through a fine mesh screen onto the surface of the water to insure an even and gradual dispersion; the screening also removes undesirable foreign matter as well as the larger granules of PVA, thus eliminating the problem of filtering. The amount of PVA added to the water is limited to the total amount wetted with stirring, and until the mixture becomes a thick, crumbly, milky paste. It is not necessary to clear this mixture in a hot water bath.

The phenol, generally crystalline, is heated slightly until liquified; the lactic acid (which prevents the recrystallization of the phenol) is added to the phenol and mixed. This mixture of acids is then added to the PVA paste and stirred. This combination should not be heated to clear; clearing will take place gradually. Soon after the acids are added, the PVA lacto-phenol mixture becomes extremely viscous and mucoid; however, as it continues to clear, the viscosity of the mixture decreases and it liquifies within a few hours to the consistency of a light syrup. This final mixture is stored in dark bottles or jars to prevent discoloration and other undesirable changes resulting from prolonged exposure to light. The mixture is now ready for use and should be dispensed only in small quantities as needed for several week periods. When exposed to light for a number of months, it becomes brown in color, appears to