

## Short Communication

 Is *Drosophila nasuta* Lamb (Diptera, Drosophilidae) currently reaching the status of a cosmopolitan species?

 Carlos Ribeiro Vilela<sup>a,\*</sup>, Beatriz Goñi<sup>b</sup>
<sup>a</sup> Departamento de Genética e Biologia Evolutiva, Instituto de Biociências, Universidade de São Paulo, São Paulo, SP, Brazil

<sup>b</sup> Sección Genética Evolutiva, Departamento de Biología Animal, Universidad de la República, Montevideo, Uruguay

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## ABSTRACT

In early March 2015, three males and two females of one unknown species of *Drosophila* were collected from a compost pile and some garbage cans in the west region of the city of São Paulo, state of São Paulo, Brazil. Morphologically it is easily identified by the presence of the following conspicuous features: a brownish dorsal stripe along pleura, an entirely iridescent silvery-whitish frons when seen directly from the front, and a row of cuneiform setae on anteroventral side of femur of foreleg; the former two traits being more evident in males. The species was easily reared in a modified banana-agar medium and two isofemale lines were established allowing to obtain mitotic cells showing a diploid chromosome number of  $2n = 8$ . Based both on morphological and chromosomal features, in addition to the geographical distribution, we concluded that the unknown flies belong to *Drosophila nasuta* Lamb, 1914, a tropical species of the *nasuta* subgroup of the *Drosophila immigrans* species group. Photomicrographs of male imagines, terminalia, mitotic and meiotic metaphase plates, as well as of female mitotic metaphase, are included.

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On March 3rd 2015, while looking for specimens belonging to *Drosophila ananassae* Doleschall, 1858, one of us (BG) collected a total of 64 flies by net sweeping over garbage cans (coded M59) (23°33'52.66" S, 46°43'51.25" W, 781 m) and a compost pile (coded M60) (23°33'53.66" S, 46°43'51.43" W, 782 m) located at the Instituto de Biociências in the main campus of the Universidade de São Paulo, Cidade Universitária "Armando de Salles Oliveira", west São Paulo city, state of São Paulo, Brazil. The species identifications were based on Spassky (1957), Magalhães (1962), Val and Sene (1980), Vilela and Bächli (1990), Vilela et al. (2002) and Bächli et al. (2004). Upon identifying the anesthetized sampled flies, the first author (CRV) noticed an unknown male, which at first sight, appeared similar to *D. ananassae* Doleschall, 1858, but differed by bearing a conspicuously iridescent silvery-white frons when seen directly from the front (Fig. 1), one wide longitudinal brown stripe on the half dorsal area of the pleurae (Fig. 2), one row of cuneiform setae on anteroventral side of profemur (Fig. 3), in addition to a wing Costal index of ca. 3.1 (Fig. 4). Being aware that *D. ananassae* males are devoid of those traits, and have, according to Lin et al. (1973), a much smaller wing Costal index of ca. 1.5, we decided to examine the internal terminalia of the unknown living male. Following the

method detailed by Spassky (1957), the first author gently pressed the tip of its abdomen with the aid of a pair of entomological pins. Upon analyzing the extruded aedeagus, CRV noticed it had, on the middle dorsal surface, a notable sea-anemone-like structure (Figs. 8–10) he had never observed on any of the Neotropical species of *Drosophila* known to him. As a roughly similar row of cuneiform setae on anteroventral side of profemur is also present in the cosmopolitan species *Drosophila immigrans* Sturtevant, 1921 (see Bächli et al., 2004), a search was conducted for the literature regarding the mostly South Asian *immigrans* species group.

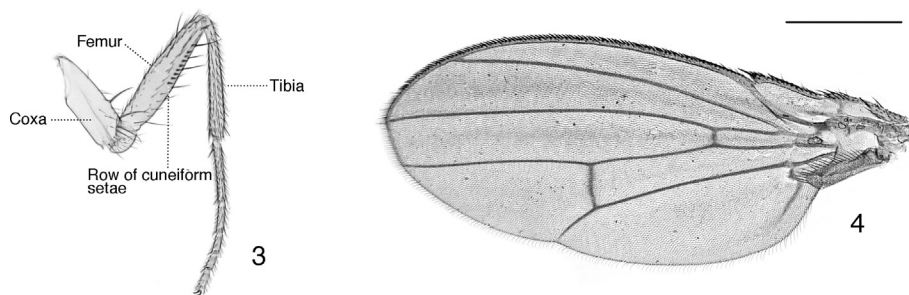
According to Bächli (2015), the large *D. immigrans* species group, currently containing 105 species, is divided into five subgroups in addition to 13 species unassigned to any of them. Wilson et al. (1969) states that all but one (*Drosophila pallidifrons* Wheeler in Wilson et al., 1969) of the 12 species currently (Bächli, 2015) belonging to the *nasuta* subgroup, bear a conspicuous silvery-white frons. Therefore, we first suspected that the three unknown collected males could belong to one of 11 following candidate species: *Drosophila albomicans* (Duda, 1923), *Drosophila kepulauan* Wheeler in Wilson et al., 1969, *Drosophila kohkoa* Wheeler in Wilson et al., 1969, *D. neonasuta* Sajjan and Krishnamurthy, 1972, *Drosophila niveifrons* Okada and Carson, 1982, *Drosophila nixifrons* Tan, Hsu and Sheng, 1949, *Drosophila pulaua* Wheeler in Wilson et al., 1969, *Drosophila sulfurigaster* (Duda, 1923), *D. taiensis* Kumar and Gupta, 1988, *Drosophila tongpua* Lin and Tseng, 1973, and

\* Corresponding author.

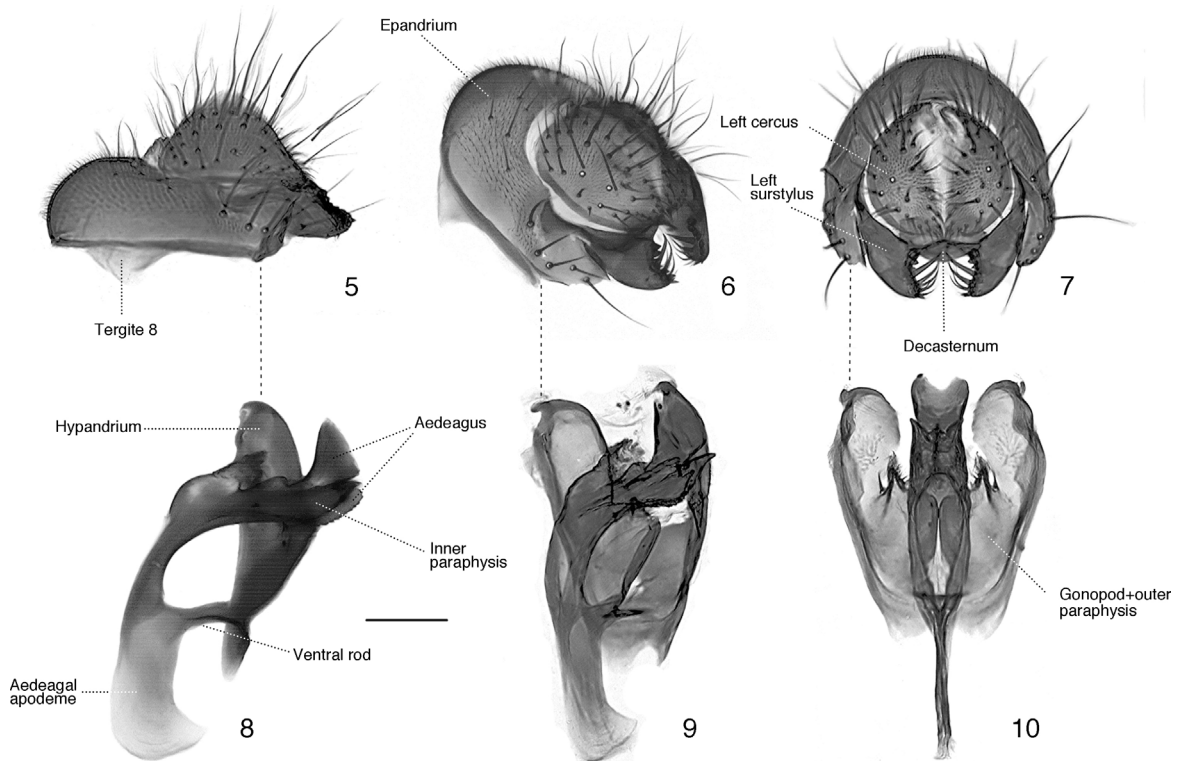
E-mail: [crvilela@ib.usp.br](mailto:crvilela@ib.usp.br) (C.R. Vilela).



**Figs. 1–2.** External male morphology of *Drosophila nasuta* (isofemale line M59F1), Cidade Universitária “Armando de Salles Oliveira”, São Paulo, state of São Paulo, Brazil. 1. Head, anterodorsal view, showing the conspicuous iridescent white silvery frons. 2. Imago left lateral view, showing the large brownish stripe on half dorsal area of pleura. Scale bars: 1 = 0.2 mm, 2 = 1 mm.



**Figs. 3–4.** Wild-caught male of *Drosophila nasuta* (specimen M60C1), Cidade Universitária “Armando de Salles Oliveira”, São Paulo, state of São Paulo, Brazil. 3. Left foreleg, anterior view. 4. Left wing, dorsal view. Scale bar = 0.5 mm.



**Figs. 5–10.** Wild-caught male of *Drosophila nasuta* (specimen M60C1), Cidade Universitária “Armando de Salles Oliveira”, São Paulo, state of São Paulo, Brazil. 5–7. External male terminalia: tergite 8+epandrium, cerci, surstyli, and decasternum. 5. Left lateral view. 6. Oblique posterior view. 7. Posterior view. 8–10. Internal male terminalia: aedeagus, aedeagal apodeme, ventral rod, paraphyses, hypandrium + gonopods. 8. Left lateral view. 9. Oblique posterior view. 10. Posterior view. Scale bar 0.1 mm.

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