



## Revisionary study of the Argentine Voriini (Tachinidae: Dexiinae)

by Diana Torres

*Grupo de Estudios sobre Sistemática y Ecología de Dípteros Caliptrados, División Entomología, Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” MACN, Buenos Aires, Argentina. E-mail: dianamarcela24@gmail.com*

**I am originally a biologist** from Cali, Colombia (Fig. 1), but I am now a first-year doctoral student at Universidad Nacional de La Plata in Buenos Aires, Argentina. I have moved here to undertake a systematic study of the Argentinian Tachinidae belonging to the tribe Voriini (Dexiinae). I will do this using both morphological and molecular evidence. My study also involves collecting fresh material, examining specimens deposited in natural history collections, recording host data associated with reared specimens, and attempting to learn about the natural history of voriines that can be observed in the field.

My research is supervised by Dr. Pablo Mulieri, who is head of the Entomology Division at the Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” (MACN), in the city of Buenos Aires. His research is focused on the systematics of the Calypttratae and particularly the Oestroidea, the superfamily to which the Tachinidae belongs. My other supervisor is Dr. Fabiana Gallardo, a specialist on parasitoid insects and a researcher associated with the Universidad Nacional de La Plata, in the city of La Plata just a short distance from Buenos Aires.

I am conducting my research at MACN, where I can be close to the voriine specimens I am studying. This museum houses one of the most complete collections of Argentinian Diptera, with about 50,000 pinned specimens. Among these is an outstanding collection of Tachinidae, with over 5000 specimens. This collection was largely accumulated over time by local dipterists, most notably Jean Brèthes (1871–1928) and Everard Blanchard (1895–1971) (Mulieri *et al.* 2013). Curation of this collection and identification of its holdings are an ongoing process that I hope to contribute to during my studies.



**Figures 2–3.** Argentine specimens of voricine flies that are under review. 2. *Voria* sp. 3. *Trichodischia* sp.

such as Blondeliini and Eryciini were of questionable monophyly, containing a wide diversity of forms that may overlap in appearance with other groups. Similarly at the generic level, Cerretti (2009) noted in his treatment of a new genus of Voriini that there are many groups of tachinids (Voriini included) where generic concepts overlap, making the assignment of species difficult. We can infer from such comments that the major morphological and ecological transitions between certain groups remain mostly unknown. This current knowledge provides an interesting perspective for addressing and initiating more detailed studies on these problematic and interesting flies.

Currently, the Voriini have about 118 genera and 504 species in the world with 68 genera and 142 species known from the Neotropical Region (Guimarães, 1971, Valencia 1972, Cortés & González 1989, O’Hara *et al.* 2019). Within the Neotropics there are many voriines that are specially adapted to the temperate zones of South America and are found only in Andean and Patagonian environments (Guimarães 1971). The known hosts of voriines are mainly lepidopteran larvae of Noctuidae and Geometridae (Cortés & González 1989).

During the last century the Voriini were placed in the Tachininae by some authors (e.g., Guimarães 1971) and in the Dexiinae by others (e.g., Herting 1984) but today there is a consensus to classify the tribe in the latter. Recent support for this view has come from the morphological study of Cerretti *et al.* (2014) and molecular study of Stireman *et al.* (2019). Thompson (1961), who reviewed the voriines of Trinidad, mentioned that most systematists regard the voriines as a taxonomic unit that can be identified by two main characteristics: the retracted hind cross-vein and the long coiled phallus of the male genitalia. However, as pointed out by Fleming *et al.* (2017: 2), “while these characters prove useful to separate most of the voriines from other tribes, this minimalist approach is not a perfect fit, with some genera in the tribe having one but not both of these traits”. This raises some questions about the limits of the tribe. Cortés & González (1989) characterized the tribe more broadly but their definition of it is not entirely satisfactory for the whole group.

In the molecular phylogeny of Tachinidae published by Stireman *et al.* (2019), the Voriini and also other groups

I have found in my review of the literature that the descriptions of many South American Voriini, and particularly Argentinian voriines, do not include features of the male genital structures. The placement of such taxa in the tribe therefore remains tentative until the male genitalia can be studied. I would also like to mention that so far only 16 genera and 24 species of Voriini have been reported from Argentina, of which a high percentage, about 63% (10 genera) are represented by a single species. We believe that the actual fauna must be much greater and are motivated by this thought to continue exploring the fauna of Tachinidae in Argentina. We hope to contribute to the knowledge of the biology of voriines at the same time.

At this point in my study, I am working on the recognition of Argentine voriine genera, and searching for and examining type material and other specimens held in MACN, Museo de La Plata (MLP) in La Plata, and Fundación e Instituto Miguel Lillo (IFML) in Tucumán. I am also preparing a photographic record of representative specimens (Figs. 2, 3) and conducting a detailed morphological exploration of the Voriini to better understand the relationships within this interesting tribe of flies.

## References

- Cerretti, P. (2009) A new Afrotropical genus of Voriini, with remarks on related genera (Diptera: Tachinidae: Dexiinae). *Insect Systematics and Evolution*, 40, 105–120.
- Cerretti, P., O'Hara, J.E., Wood, D.M., Shima, H., Inclán, D.J. & Stireman, J.O. III. (2014) Signal through the noise? Phylogeny of the Tachinidae (Diptera) as inferred from morphological evidence. *Systematic Entomology*, 39, 335–353.
- Cortés, R. & González, C.R. (1989) Géneros voriinos de taquinidos chilenos (Diptera: Tachinidae, Voriini). *Memórias do Instituto Oswaldo Cruz*, 84 (Suppl. IV), 115–123.
- Fleming, A.J., Wood, D.M., Smith, M.A., Dapkey, T., Hallwachs, W. & Janzen, D.H. (2017) A new species of *Voria* Robineau-Desvoidy (Diptera: Tachinidae) from Area de Conservación Guanacaste in northwestern Costa Rica. *Biodiversity Data Journal*, 5 (e20123), 1–19.
- Guimarães, J.H. (1971) Family Tachinidae (Larvaevoridae). *A Catalogue of the Diptera of the Americas South of the United States*, 104, 333 pp.
- Herting, B. (1984) Catalogue of Palearctic Tachinidae (Diptera). *Stuttgarter Beiträge zur Naturkunde. Serie A (Biologie)*, 369, 1–228.
- Mulieri, P.R., Patitucci, L.D., Bachmann, A.O. & O'Hara, J.E. (2013) The type specimens of Tachinidae (Diptera) housed in the Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires. *Zootaxa*, 3670, 157–176.
- O'Hara, J.E., Henderson, S.J. & Wood, D.M. (2019) *Preliminary checklist of the Tachinidae (Diptera) of the world*. Version 1.0. PDF document, 681 pp. Available at: <http://www.nadsdiptera.org/Tach/WorldTachs/Checklist/Worldchecklist.html>.
- Stireman, J.O. III, Cerretti, P., O'Hara, J.E., Blaschke, J.D. & Moulton, J.K. (2019) Molecular phylogeny and evolution of world Tachinidae (Diptera). *Molecular Phylogenetics and Evolution*, 139, 106358.
- Thompson, W.R. (1961) The tachinids (Diptera) of Trinidad. I. The voriines. *Transactions of the American Entomological Society*, 87, 21–44 + 5 pls.
- Valencia, L.A. (1972) *Velardemyia*, nuevo género de Tachinidae – Voriini (Diptera) del Perú. *Revista Peruana de Entomología*, 15, 363–365.