ABSTRACT

GEOMETRIC MORPHOMETRY OF THE WINGS OF *Sciopemyia sordellii* (SHANNON & DEL PONTE, 1927) (DIPTERA: PHLEBOTOMINAE) POPULATIONS FROM BRAZILIAN BIOMES

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Abstract

Sciopemyia sordellii (Diptera: Psychodidae: Phlebotominae) is widely distributed across the Americas, with the most records occurring in Brazil. It is found in all five Brazilian geographical regions and across diverse biomes. This raises doubts about their identity as a single biological entity and points to the occurrence of species complex.

Here, we used geometric morphometric (GM) analyses to investigate differences in wing size and shape among *S. sordellii* populations from Brazilian biomes. After taxonomic studies, 262 specimens of *S. sordellii*, 133 males and 129 females, from four biomes, Amazon (n= 72), Caatinga (n= 31), Cerrado (n= 80) and Atlantic Forest (n= 39), were selected. These specimens come from biological collections in Brazil, and from fields collected from different research projects.

The right wing of each specimen was analyzed. To GM, Generalized Procrustes Analysis (GPA), Principal Component Analysis (PCA), Canonical Variable Analysis (CVA), Discriminant Functions (DF), and Mahalanobis distances (dM) were carried out using the MorphoJ program, and centroid size analyzed in GraphPad Prism.

Wing analyses revealed important differences in wing size and shape between *S. sordellii* specimens from the Caatinga biome and those from the Amazon, Cerrado and Atlantic biomes, in both males and females. Environmental factors, particularly the high temperatures and water scarcity characteristic of the Caatinga biome, may contribute to the observed differences in wing size and shape between this population and others.

Molecular investigations are currently being conducted on these *S. sordellii* populations to evaluate the concordance between genetic differentiation and the results obtained from geometric wing morphometry.

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Keywords: Integrative Taxonomy, Phlebotominae, Species complex.