

# VARIATION OF WING SHAPE, SEXUAL DIMORPHISM AND DIRECTIONAL ASYMMETRY IN NATURE POPULATION OF THE POECILOBOTRUS REGALIS (MEIGEN, 1824) (DIPTERA, DOLICHOPODIDAE)

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**Abstract.** *Background.* As taxonomic character of wing venation in dolichopodid flies is often used in taxonomic studies, more detailed observation including variation in shape and pattern of sexual dimorphism between different generations and between sides of individuals has the potential to shed light on evolutionary trends in the family. *Materials and methods.* A geometric morphometric analysis was conducted to examine the patterns of wing shape variation in the individual population of *Poecilobothrus regalis* (Meigen, 1824). ANOVA was used to estimate significance of differences among generations, sexes and sides. CVA was performed to allocate these differences. Degree of asymmetry was computed as difference between sizes of left and right wings. Assessment of differences between values of asymmetry in the groups was taken using t-test. *Results.* An analysis of the data using the Procrustes method found significant intergenerational differences in wing size and shape, and it was shown that the intergenerational shape variation was partly explained by the allometry. Statistic comparison of the amount and pattern of sexual shape dimorphism among three generations reveals no significant differences. In three cases, significant directional asymmetry was found. *Conclusion.* A comparison of the intergenerational and intra-generational pattern of shape variation and variation, attributed to directional asymmetry, showed their considerable correspondence. There was no significant evidence that level of fluctuating asymmetry may be a measure of the ability of individuals to cope with environmental conditions.

**Keywords:** directional asymmetry, Dolichopodidae, geometric morphometric, *Poecilobothrus regalis*, sexual dimorphism, wing shape.