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Male genitalia and ant evolution

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Our recent studies show that the morphological information discovered from male ants is a valuable tool to clarify their evolution and to find a proper taxonomic position for a taxon. Wings, flight sclerites, and genitalia in male ants are particular characters that differ from the characters present in the workers, which are mainly targeted for establishing the taxonomic system of ants. Among these useful characters, especially the male genitalia are expected as one of the most efficient sources to gain new morphological insights into ant evolution. However, the information is not yet sufficient and standardized enough to evaluate the actual value of the genital characters. Most data about the genital characters of male ants is scattered in many sources and mostly as part of species descriptions. Only few of the characters have been proposed to organize a taxonomic hierarchy. Although intra-taxon variation should be assessed before a comparison can be made across groups of higher taxonomic rank, few studies include enough material to estimate the variation. This study reviews and reorganizes the data of male-genital characters collected throughout our taxonomic and comparative studies of male ants in order to discuss the actual usefulness of the genital characters in ant systematics. Dracula ants, the subfamily Amblyoponinae is targeted to examine the differences in species and genus rank. The material examined covers most species found in the Malagasy region, and the covered range of variation seems sufficient to estimate intra-generic variation and inter-generic differences among the major genera in this group. Dolichoderinae and Formicinae are focused on for a comparison across subfamilies.