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Morphological analysis of the Dolichoderine ants of Madagascar (Hymenoptera: Formicidae)

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Although systematics research is increasingly reliant on molecular data to define relationships, morphological analysis remains essential for identifying characters to diagnose and identify lineages. In ants, mouthpart and petiole structures are useful for these purposes. Ant mouthpart structures are highly variable because they reflect adaptations to different diets for different ant species, and may provide reliable characters for differentiating between genera and species. Petiole shape and structure are also variable among species and genera, and may be informative in the identification of lineages. However, little research has involved creating a permanent, online accessible record of ant mouthpart and petiole morphology. The main goals of this project were to create such a record, and to identify mouthpart and petiole characters to differentiate between the genera of Malagasy ants within the subfamily Dolichoderinae. The Dolichoderinae of Madagascar include 12 species of *Technomyrmex*, 8 *Tapinoma*, 2 *Aptinoma*, and 2 *Ravavy*. Petioles and mouthparts from multiple individuals of the 24 species were dissected and imaged using an auto montage camera. Mouthparts were first removed from the ant, stained using aqueous 3% eosin Y, and permanently fixed on slides with Euparal mounting medium. Characters scored include maxillary and labial palp segment counts, mandibular denticle pattern, mandible shape, labrum shape, and petiole shape. Images of the mouthparts and petioles are publicly accessible online at AntWeb.org. These characters were used to create a key to the Dolichoderine genera of Madagascar.