

## From four- to three-segmented labium in Reduviidae (Hemiptera: Heteroptera)\*)

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**Abstract.** The majority of Reduviidae – unlike most other Heteroptera – has a labium that consists of only three segments. The first segment is said to be either lost or fused to the head capsule. Cladistic analysis shows that this loss or fusion occurred once or twice among basal Reduviidae and that the four-segmented labium in Hammacerinae is plesiomorphic and homologous to the one in non-reduviid Cimicomorpha. In the present contribution, extrinsic labial muscles and sclerites associated with the base of the labium are documented (micro-dissections, histology) for *Himacerus apterus* (Fabricius, 1789) (Nabidae), *Microtomus purcis* (Drury, 1782) (Reduviidae: Hammacerinae) and *Rhynocoris erythropus* (Linnaeus, 1767) (Reduviidae: Harpactorinae). Primary homology hypotheses are proposed on lever, depressor, and transverse muscles among the examined taxa and previously published descriptions of Nepomorpha and Leptopodomorpha. The two Reduviidae are unique in having a large portion of the *Musculus levator labii* (muscle A) originating from the first labial segment (*M. purcis*) or the gena (*R. erythropus*). This may indicate that part of the gena is homologous to part of the first labial segment, i.e. the proximal portion of the first labial segment may be fused to the gena, but migration of the muscle origin may also account for this condition. The insertion of *M. transversalis labii* has shifted from the dorsal surface of the first labial segment to the anterior portion of the suspensory plate, possibly indicating that this structure may include part of the first labial segment. Even though the first labial segment is not visible externally in the majority of Reduviidae, two muscles that were originally associated with it are thus retained. Mapped on a phylogeny of Reduivoidea it seems evident that in a first step the levator muscle became larger at the base of the Reduviidae. In a second step the first labial segment fused to the head capsule, possibly providing this enlarged muscle with a more solid origin.

**Key words.** Reduviidae, morphology, labium, histology, muscle, phylogeny

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