

Androconial Hairbrushes of the *Syntomis* (*Amata*) *phegea* (L.) Group (*Lepidoptera*, *Ctenuchinae*): A Synapomorphic Character Supported by Sequence Data of the Mitochondrial 16S rRNA Gene

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Taxonomy of *Amata/Syntomis*, Phylogeny of Syntomini, Arctiinae, Ctenuchini and Syntomini

Males of several palaeartic *Syntomis/Amata* species (Lepidoptera: Arctiidae) possess androconial hairbrushes in connection with the foreleg coxa. The cuticular structure of these potentially behaviour-related and pheromone dissipating brushes is described. Such male-specific organs and signals play a crucial role in the female choice procedure. The presence of hairbrushes was found in 17 out of 28 inspected species of the tribe Syntomini. All members of the *Syntomis phegea* group (Europe to Central Asia, as well as Caspian, Caucasian and near-middle East species) have these structures, and only three oriental and south Asian, but none of three African species, carry this trait. The common genetic base of this morphological character is supported by an analysis of mitochondrial 16S rRNA from 19 representative taxa; species with hairbrushes form a monophyletic clade and the brushes are a synapomorphic character. This genetic finding corroborates the ethological significance of these organs. Phylogenetic data show a substantial genetic divergence between the tribe Ctenuchini (New World species) and the Old World Syntomini. Furthermore, DNA sequence data suggest a split of the genus *Amata* (sensu Obrachtsov, 1966) in two distinct genera, *Amata* (without hairbrushes) and *Syntomis* (with hairbrushes).