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ABSTRACT BOOK

Editors

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History of whiteflies (Insecta: Hemiptera: Aleyrodoidea)

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The whiteflies (Hemiptera: Sternorrhyncha: Aleyrodomorpha) are a distinctive group within the Hemiptera, classified based on the morphological features of their immatures. The morphological features of the instars, particularly the fourth instar known as puparium, can diagnose almost all taxonomic units from species to subfamilies. Identification of the species for adult specimens, regardless of gender, is extremely difficult or impossible due to the lack of global identification keys based on adult morphological features. Taxonomic practice of whiteflies generally disregards imagines, as their systematics and classification rely solely on puparial characters.

Aleyrodidae are commonly referred to as whiteflies due to the powdery secretion that covers the bodies and wings of the adults of almost all known species. Like other sternorrhynchans, whiteflies feed on plant sap (phloem). They are usually associated with specific host plants. As larvae, puparia, and adults, these insects typically feed on the undersides of plant leaves. They are considered to be one of the most economically damaging pests to a wide variety of crops worldwide. The family Aleyrodidae comprises over 1700 described species and is divided into four subfamilies: Bernaeinae, which are only known as fossils, and Aleyrodinae, Aleurodicinae, and Udamoselinae, which contain both extant and fossil species. Aleyrodinae is distributed worldwide, while Aleurodicinae is primarily found in the Neotropics. Udamoselinae consists of only two South American species.

Fossils of Aleyrodidae are mainly preserved as imagines, with fossilized puparia being extremely rare. The fossil record of Aleyrodidae dates back to the Late Jurassic. Although a few formally described species have been reported from sedimentary deposits and fossil resins aged Cretaceous, Paleogene, and Neogene. The known fossils of whiteflies represent only a small fraction of their true taxonomic diversity, covering only a portion of their morphological disparity. The inclusions of whiteflies in the resins have often been overlooked or ignored. They are preserved as imagines and are difficult to compare with recent specimens, which show little recognised disparity. However, it is important to note that these inclusions constitute an important part and significant aspect of the fossil record. They provide new data not only on taxonomy and morphology, but also on palaeoecosystems, palaeohabitats, palaeoclimates and evolutionary traits.