LECTURE - BIOLOGY OF GALLS

GALLS INDUCED BY CECIDOSID MOTHS IN THE NEOTROPICS

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Cecidosidae (Lepidoptera) is a small group (ca. 21 species worldwide) of monotrysian micromoths that have a Gondwanic distribution, occurring in Southern South America, Africa and New Zealand. Most of them induce either caulinar or leaf galls in Anacardiaceae, with the exception for the monospecific Neozeland Xanadoses Hoare & Dugdale whose larvae are bark-miners. The majority of gall-inducer species are associated with Schinus Linnaeus and Searsia F. A. Barkley, in South America and Africa, respectively. Twelve cecidosid species are recognized for Africa, which belong to a single genus (Scyrotis Meyrick). They reach the greatest diversity in South America, where six genera (eigth recognized species) occur: two species in Di¬cranoses Kieffer & Jörgensen and two in Oliera Brèthes, and a total of four in the monotypic genera Cecidoses Curtis, Euce¬cidoses Brèthes, Cecidonius Moreira & Gonçalves and Andescecidium Moreira & Vargas. Several species await for formal description, coming particularly from the mountain regions of coastal Brazil and northern Argentina. Thus, diversity is expected to be greater for the lineage in the region, their scarcity in collections resulting from low sampling activity.

South American and African lineages form a monophyletic group nested within Adeloidea moths, and that started diversification in the former region circa 120 Mya. Galls of South American species are either spherical or cylindrical in shape, and are species-specific regarding their hosts. They supposedly have

recent and rapid co-speciated with their host species (ex. Eucecidoses minutanus Brèthes), which remains to be better explored.

With the exception of Oliera species, whose galls develop fully under bark, they grow externally at least during later ontogeny. Apparently all have one-year lifecycle, adults flying either in later Spring (Dicranoses, Oliera and Eucecidoses species) or Fall (Cecidoses). In some species (ex., Cecidonius pampeanus and Andescecidium parrai) galls are dehiscent, the last larval instar pupating in the soil within the galls. In C. pampeanus, larvae overwinter in a diapause condition, adult flying in early Spring.

Anatomy and histology of such galls have been studied in detail for a few species (ex. Cecidoses eremita Curtis). Apparently, all develop a specialized nutritional tissue, from which larvae feed upon. They are covered externally by a hard cortex and in most cases have an operculum through which the adult emerges. From an ecological perspective, they call someone attention by the great number of associated fauna, such as parasitoids, predators, cecidophages, inquilines and successors, which in most cases are not known yet from a taxonomic perspective. These, among other factors such a high host-specificity, localized distribution and apparently low dispersion, make the cecidosid moths promissory candidates to be used in studies from an evolutionary ecology perspective. (Supporting agencies: FAPERGS, CNPq, CAPES).