



GALL INDUCING INSECTS FROM RESTINGAS OF CABO FRIO, RIO DE JANEIRO, BRAZIL

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INTRODUÇÃO

Galls are abnormal modifications in plant tissue induced by an insect or mite (Raman, 2007). This kind of insect-plant interaction is one of the most complex associations because each insect induces a distinct gall (Stone and Schönrogge, 2003). A recent estimate predicted that there are almost one hundred and thirty thousand galling species in the world, and among them the cecidomyiids are the richest (Espírito-Santo and Fernandes, 2007). Although the Neotropical fauna is still poorly known, this family seems to be more diversified in the neotropics than in any other region (Gagné, 1994). In Brazil most studies with galls have been done in southeastern and southeast, mainly in Atlantic Forest and Cerrado (Maia, 2001; Maia and Fernandes, 2004). Surveys of galls in the coastal Brazilian vegetation (restinga) have shown a great richness of galling insects, mainly in Rio de Janeiro and São Paulo states (Maia, 2001; Oliveira and Maia, 2005; Maia *et al.*, 2008).

OBJETIVOS

We investigated the insect galls from restinga vegetation of Perú and Foguete beaches in Cabo Frio, Rio de Janeiro, Brazil.

MATERIAL E MÉTODOS

The study was conducted in restingas of Foguete beach and Perú beach. These areas are inside the Parque Estadual

Costa do Sol, with an area of 9,840 ha, including six cities. We chose eight points for collecting, three in Foguete beach and five in Peró beach. We surveyed each two months, from June 2011 to May 2012. In each point we collected galls during 45 minutes. All the gall morphotypes were photographed. The galls were taken to the laboratory of Diptera of Museu Nacional, UFRJ for rearing the insects and identification. Each gall morphotype was kept individually in plastic pots layered at the bottom with damp cotton and covered by fine screening. The pots were checked daily for adult emergence. Immature insects were obtained by dissecting some galls. All specimens were preserved in 70% ethanol. The Cecidomyiidae specimens were mounted in slides following the methodology of Gagné (1994), and identified using identification keys and comparing with original descriptions. All material is deposited in the collection of Museu Nacional, Rio de Janeiro (MNRJ). The plants were pressed and dried for identification.

RESULTADOS

We surveyed 44 galls morphotypes in restingas of Cabo Frio, in 31 plant species belonging to 20 families. Most galls were induced on leaves (n=23, 52%), followed by stems (n=8, 18%), midveins (n=5, 11%), flowers (n=4, 9%), buds (n=3, 6%) and fruits (n=1, 2%). Myrtaceae was the richest family with galls, seven plant species yielding ten galls morphotypes. Despite most galls were caused on Myrtaceae, *Cordia curassavica* (Jacq.) Roem. & Schult. (Boraginaceae) was the plant species with the highest number of galls morphotypes (n=5). *Eugenia uniflora* L. (Myrtaceae) and *Guapira opposita* (Vell.) Reitz (Nyctaginaceae) appeared in second place, with three galls morphotypes each. Three insect orders induced galls in the investigated areas: Hemiptera (n=3, 6%), Lepidoptera (n=6, 13%), Diptera (n=32, 72%), and unknown (n=3, 6%). Among the Hemiptera, the species *Calophya terebinthifolii* Burckhardt & Basset, 2000 (Psyllidae) induced parenquimatic galls on leaves of *Schinus terebinthifolius* Raddi. All Lepidoptera galls occurred on stems. Two Diptera families induced galls: Tephritidae (n=1) and Cecidomyiidae (n=31). *Procecidochares* sp. (Tephritidae) caused stem galls on *Eupatorium punctulatum* DC. (Asteraceae). The gall midges were represented by 15 genera, being the most diversified *Dasineura* Rondani, 1840 (4 species), *Asphondylia* Loew, 1850 (3 species) and *Bruggmannia* Tavares, 1906 (3 species).

DISCUSSÃO

Surveys in restingas from Rio de Janeiro have been pointed as harbor a great diversity of galling insects (Maia, 2001; Oliveira and Maia, 2005). According to a world pattern, most galls were caused on leaves. Regarding the plant families, in restingas, Myrtaceae is known as the family with the majority of galls, being *Eugenia* L. the richest genus (Maia, 2001; Oliveira and Maia, 2005). Despite our study recorded three insect galling orders, all known orders that induce galls are found in restingas from Rio de Janeiro (Maia, 2001; Oliveira and Maia, 2005). Diptera was the main galling order, most represented by Cecidomyiidae. This family is cosmopolitan and predominant in most surveys of galls worldwide (Gagné, 1994; Espírito-Santo and Fernandes, 2007). The most diversified genera found here are among the most common in restingas, such as *Asphondylia* and *Dasineura* with 10 and 12 species recorded, respectively (Maia and Barros, 2009). All Lepidoptera galls found in this study occurred on stems, organ commonly attacked by moths. The only Hemiptera identified here belong to Psyllidae, which is reported in other gall inventories in restingas (Maia, 2001; Oliveira and Maia, 2005).

CONCLUSÃO

The high richness of gallers found in restinga vegetation is also confirmed in our study. All records of insect galls are new for these areas, which increases the distribution areas of these galling species.

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