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ONCIDERES OCULARIS (COLEOPTERA: CERAMBYCIDAE) GIRDLING *MIMOSA BIMUCRONATA* (FABACEAE) IN BRAZIL

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Beetles of the subfamily Lamiinae (Coleoptera: Cerambycidae) are known as "twig girdlers," because their females girdle branches of living trees with their mandibles to lay their eggs (Linsley 1959). The genus *Oncideres*, exclusive of the American continent, presents the highest number of species of this type of beetle (Hovore & Penrose 1982; Di Iorio 1996; Monné 2002). *Oncideres ocularis* Thomson, 1868 is a potential threat to forest plantations of the family Fabaceae, such as black wattle (*Acacia meanrsii* De Wild.), *Acacia bonariensis* Hook. & Arn., and *Pithecolobium* sp., and occurs in Argentina and in southern and southeastern Brazil (Vulcano & Pereira 1978).

Mimosa bimucronata (DC.) Kuntze (Fabaceae) occurs in Argentina, Brazil, Paraguay and Uruguay (Burkart 1959; Barneby 1991). This species is used in restoration programs of degraded areas but has an invasive behavior especially in pastures (Lorenzi 2008). *Acanthocelides schrankie* Horn (Coleoptera: Bruchidae) (Silva et al. 2007; Tomaz et al. 2007) and the twig girdler beetles *Oncideres saga* (Dalman) (Coleoptera: Cerambycidae) and *O. impluviata* (Germar) (Coleoptera: Cerambycidae) (Link et al. 1984) are pests of *M. bimucronata*. Therefore the aim of this study was to record the occurrence of *O. ocularis* girdling branches of *M. bimucronata* in the southeast region of Brazil.

Branches of *M. bimucronata* girdled by twig girdlers were collected in a hedge with 3 trees of this plant and others of *Mimosa caesalpiniifolia* Benth. This hedge was located on the side of the state highway MG 120 in the rural municipality of Viçosa, Minas Gerais State, Brazil (S 20° 47' 17" -W 42° 52' 55").

Weekly visits were made from Dec 2010 to Apr 2011 and Dec 2011 to Apr 2012 to collect fallen branches girdled by this beetle. The diam of the portion where the branches were girdled was measured with a digital caliper with an accuracy of 0.01 mm and its length measured with tape with an accuracy of 0.1 mm. The number of egg-laying incisions was counted per branch. The length of the branch was divided into 5 equal sections (basal, mid-basal, middle, mid-apical and



Fig. 1. *Oncideres ocularis* Thomson, 1868 on a branch of *Mimosa bimucronata* (DC.) Kuntze.

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apical). The average number of incisions and its distribution were determined per branch section.

Adults of twig girdler beetles collected on the branches were sent for identification to the taxonomist Prof. Dr. Ubirajara Martins, Museum of Zoology of the University of São Paulo (MZUSP). Another voucher specimen was deposited in the Regional Museum of Entomology, Federal University of Viçosa (UFVB). The twig girdler was identified as *Oncideres ocularis* Thomson, 1868 (Fig. 1). Two girdled branches were collected in Jan 2011 and 2 collected in Feb 2012. No other girdled branch was found outside this period, but the twig girdlers were active on *M. caesalpiniifolia* trees from Dec to Mar 2011 and 2012.

The diam at the base of the *M. bimucronata* branches girdled by *O. ocularis* ranged from 6.71 to 10.15 mm with a mean of 8.26 ± 0.84 mm (± SE) (n = 4). The length of the girdled branches by this beetle ranged from 99.5 to 145.7 cm with a mean of 126.72 ± 11.09 cm. The number of incisions per branch girdled was 11.00 ± 2.04 with a minimum of 8 and a maximum of 17. The first 3 sections of the branch had 4.25 ± 0.85, 4.00 ± 0.91 and 2.75 ± 0.75 incisions, respectively. No incision was found in the 3 apical parts of the branches (Fig. 2).

The activity period of *O. ocularis* during the raining season was similar to that of *O. humeralis* Thorms in São Paulo State (Paulino Neto et al. 2006), but prior to that of *O. mirim* Martins & Galileo in Tocantins State, Brazil (Lemes et al. 2012). This confirms that individuals of the genus *Oncideres* are more common in rainy and warm periods of the yr (Lemes et al. 2012).

The diam of *M. bimucronata* branches girdled by *O. ocularis* were similar to those of *Prosopis glandulosa* var. Torr. (Fabales: Fabaceae) girdled by *O. rhodosticta* Bates (Martinez et al. 2009), and trees of family Fabaceae girdled by *O. cingulata* (Say) and *O. rhodosticta* (Cramer 1998; Polk & Ueckert 1973). However, the diam of branches of *Leucaena leucocephala* (Lam.) de Wit and *Aca-*

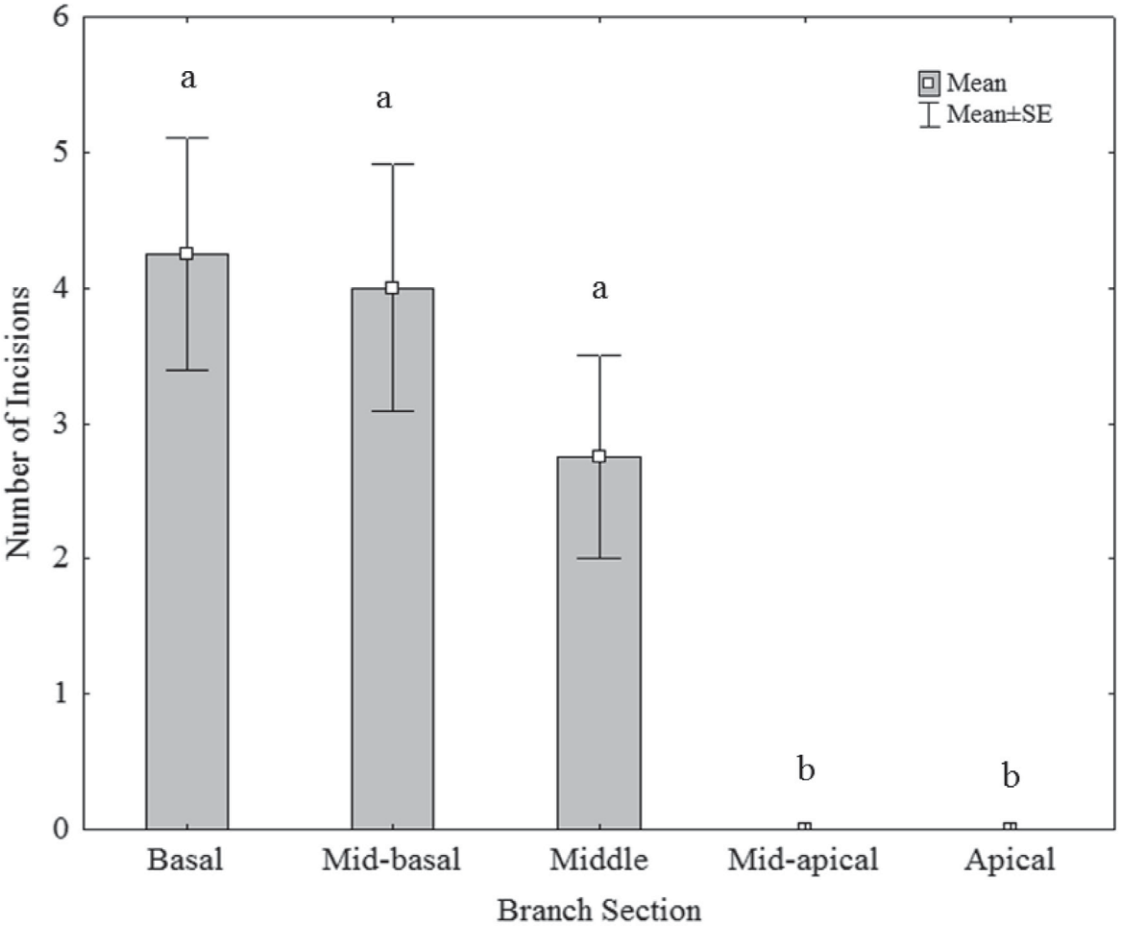


Fig. 2. Mean (± SE) number of incisions of *Oncideres ocularis* (Coleoptera: Cerambycidae) per branch section of *Mimosa bimucronata* in Viçosa, Minas Gerais State, Brazil.

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cia farnesiana (L.) Willd (Rodriguez-del-Bosque & Garza-Cedillo 2005) girdled by *O. pustulata* the diam of branches of trees of the family Melastomataceae (Paulino Neto et al. 2005) girdled by *O. humeralis* in may be wider.

The lengths of *M. bimucronata* branches girdled by *O. ocularis* were similar to those of *Piptadaenia gonoacantha* J. F. Macbr. girdled by *O. impluviata* and branches *Acacia mangium* girdled by *O. mirim*, respectively (Lemes et al. 2011; Lemes et al. 2012). But the lengths of *M. bimucronata* branches girdled by *O. ocularis* were greater than those of *Carya ovata* (Mill.) K. Koch girdled by *O. cingulata* and those of *P. glandulosa* by *O. rhodosticta* (Cramer 1998; Martinez et al. 2009) and narrower than branches girdled by *O. dejeanii* Thomson and *O. pustulata* (Rice 1989; Cordeiro et al. 2010).

Since as the diam of a branch doubles its volume quadruples, the branches of larger diam ensure increased food availability for larvae of *Oncideres* spp. This could explain why certain species of twig girdler beetles with bigger adults prefer to girdle branches with greater diam and length. For example, *O. dejeanii* girdle branches 4 × wider than those girdled by *O. ocularis*, and 2.5 × longer) (Cordeiro et al. 2010).

The numbers of incisions on branches of *M. bimucronata* were similar to those made by *O. humeralis* in Melastomataceae, and by *O. cingulata* in *C. ovata* and *P. glandulosa* (Paulino Neto et al. 2006; Cramer 1998; Rogers 1977), but fewer than those made by *O. pustulata* in *A. farnesiana* (Rice 1989). These differences may be related to the size of the branches girdled and the volume of wood available to feed larvae. Branches girdled by *O. pustulata* presented more incisions between 0 and 20 cm from the base (Rice 1989). *Oncideres cingulata* laid eggs, particularly, between 20 and 30 cm from the base and *O. guttulata* between 10 and 25 cm from the girdled base (Diodato et al. 1997; Cramer 1998).

Mimosa bimucronata is recorded as a host of *O. ocularis,* and this is the first report of this beetle in the southeast region of Brazil. These twig girdler beetles can damage Fabaceae trees in regions where they occur.

We express thanks to Prof. Dr. Ubirajara Martins for the identification of the insect, and to Dr. Valquíria Ferreira Dutra, Federal University of Espírito Santo and José Martins Fernandes, Federal University of Viçosa for the identification of botanical species. They recommended the website http://floradobrasil.jbrj.gov.br for botanical identification of Brazilian tree species. We express thanks to Diogo Costa, Hélio Garcia Leite and one of the reviewers for the statistical advice, to Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and to Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG) for the financial support granted to authors of this research.

Summary

Mimosa bimucronata (DC.) Kuntze (Fabaceae) is recorded as a host of *Oncideres ocularis* Thomson, 1868 (Coleoptera: Cerambycidae), and this is the first report of this twig girdler in the southeast region of Brazil. The history of twig girdler beetles as pests of Fabaceae trees indicates that Fabaceae tree species can be damaged in areas where this insect occurs.

Key Words: twig girdler, Fabaceae, forest entomology, branch girdling

Resumo

Mimosa bimucronata (DC.) Kuntze (Fabaceae) é registrada como hospedeira de *Oncideres ocularis* Thomson, 1868 (Coleoptera: Cerambycidae) e essa é o primeiro registro desse besouro serrador na região sudeste do Brasil. O histórico de besouros serradores em árvores da família Fabaceae indica que essa espécie pode ser danificada em áreas de ocorrência desse inseto.

Palavras-Chave: besouros serrador, Fabaceae, entomologia florestal, anelamento de galho

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