# Iphimeis dives (Coleoptera: Chrysomelidae): First Report on Inga edulis (Fabaceae) in Brazil and Data on its Biology

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# *Iphimeis dives* (Coleoptera: Chrysomelidae): first report on *Inga edulis* (Fabaceae) in Brazil and data on its biology

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*Inga edulis* Mart. (Fabaceae) is a fruit plant found in secondary tropical forests in Central and South America (Silva et al. 2007a). Compounds from its leaves can be used to manufacture anti-inflammatory medicines (Silva et al. 2007b), and its fruits are rich sources of vitamins and antioxidants (da Silva & Rogez 2013). In addition, *Inga* species are used in landscaping projects, degraded area recovery, and in agroforestry systems (dos Santos Júnior et al. 2006; Leblanc et al. 2006; de Araújo & Pires 2009). Insect pests such as *Methona themisto* Hübner (Lepidoptera: Nymphalidae), reported in Viçosa, Minas Gerais State, Brazil, can reduce the productivity and aesthetics of *I. edulis* plants (Tavares et al. 2013).

*Iphimeis dives* Germar (Coleoptera: Chrysomelidae) larvae and adults feed on numerous plants, including *Acacia decurrens* Willd., *Glycine max* (L.) Merr., *Mucuna pruriens* (L.) DC., *Phaseolus vulgaris* L. (all Fabaceae), *Actinidia deliciosa* C.F. Liang & A.R. Ferguson (Actinidiaceae), *Campomanesia xanthocarpa* (Mart.) O. Berg, *Plinia cauliflora* (Mart.) Kausel (both Myrtaceae), *Chorisia* sp. (Bombacaceae), *Citrus* × *limon*, *Citrus reticulata* Blanco, *Citrus* × *sinensis* (all Rutaceae), *Coffea arabica* L. (Rubiaceae), *Diospyros kaki* L.f. (Ebenaceae), *Jatropha curcas* L. (Euphorbiaceae), *Malus pumila* Miller, *Prunus persica* (L.) Batsch, *Pyrus communis* L., *Rosa* sp. (all Rosaceae), *Solanum melongena* L. (Solanaceae), and young leaves of *Vitis vinifera* L. (Vitaceae) (Mariconi 1962; Basso et al. 1974; de Oliveira et al. 2011; Wiest & Barreto 2012; Milléo et al. 2013; Alves et al. 2016; Luckmann et al. 2016). The objectives are to report a new host plant record for *I. dives* in Brazil, and to provide data on the egg mass characteristics of this insect.

The *I. dives* occurrence was monitored on 10 *I. edulis* adult plants in Nov 2013 and Nov 2014 by visual observation in landscaped areas in Lavras, Minas Gerais State, Brazil (21.2333°S, 44.9833°W, 919 masl). The rainfall and the average temperature in Lavras in Nov 2013 and Nov 2014, the months with the highest populations of the pest, were 180 and 224 mm, and 22.6 and 23.6 °C, respectively (INMET 2017).

A total of 50 *I. dives* adults, without sex determination, were collected in Nov 2013 and another 50 in Nov 2014, placed in 250 mL plastic pots and brought to the Regional Museum of Entomology "Ubirajara Martins" of the Federal University of Lavras in Lavras, where the sex of the insects was determined. Five males and 5 females were mounted and sent to Dr. Germano Henrique Rosado Neto, of the Department of Zoology of the Federal University of Paraná in Curitiba, Paraná State, Brazil, for species identification. The characteristics of the *I. dives* antennae and legs (Mariconi 1962) were compared with dichotomous insect keys for this genus and with others of the same species deposited at the Federal University of Paraná entomological collection. These specimens were preserved as sample number 0092/2013-RN. *Inga edulis* branches with flowers and fruits were collected and sent to Dr. Rubens Manoel dos Santos, of the Department of Forest Sciences of the Federal University of Paraná for plant species identification.

Five pairs of young *I. dives* collected from *I. edulis* in Nov 2014 were placed individually in 500 mL plastic pots at 25 ± 2 °C, 70 ± 1% RH, and 12:12 h (L:D) photoperiod at 2,000 lux. Fresh *I. edulis* leaves, with the petiole immersed in a container with water, were offered ad libitum to the insects and changed when necessary. The proportion of beetles which females oviposited, number of eggs per mass (± SE), and the period (d) between the first and last egg deposited per pair of *I. dives* were evaluated.

Hundreds of adult *I. dives* were observed feeding on leaves of 10 *I. edulis* plants that were about 5 yr old in Nov 2013 and 6 yr old in Nov 2014 (Fig. 1A). Insects fed from the edge to the center of the leaf (Fig. 1B). *Iphimeis dives* pairs were observed mating on *I. edulis* plants, but neither eggs nor larvae were observed on the plants after visual examination (Fig. 1C).

All *I. dives* pairs collected in Nov 2014 oviposited in the laboratory. The number of eggs per mass was 69.2 ± 10.6. The first egg was deposited 1 d after the insects were brought from the field, and the last 14 d later, with an average duration of 2.6 ± 1.1 d for each act of oviposition. Eggs were orange and oval (Fig. 1D).

The *I. dives* abundance in Nov 2013 and Nov 2014 in Lavras coincided with the beginning of the rainy season in this municipality (Beijo et al. 2005) and may affect *I. edulis* phenology. The rainy season favors emergence of new leaves by this plant (Milléo et al. 2013), which are preferred

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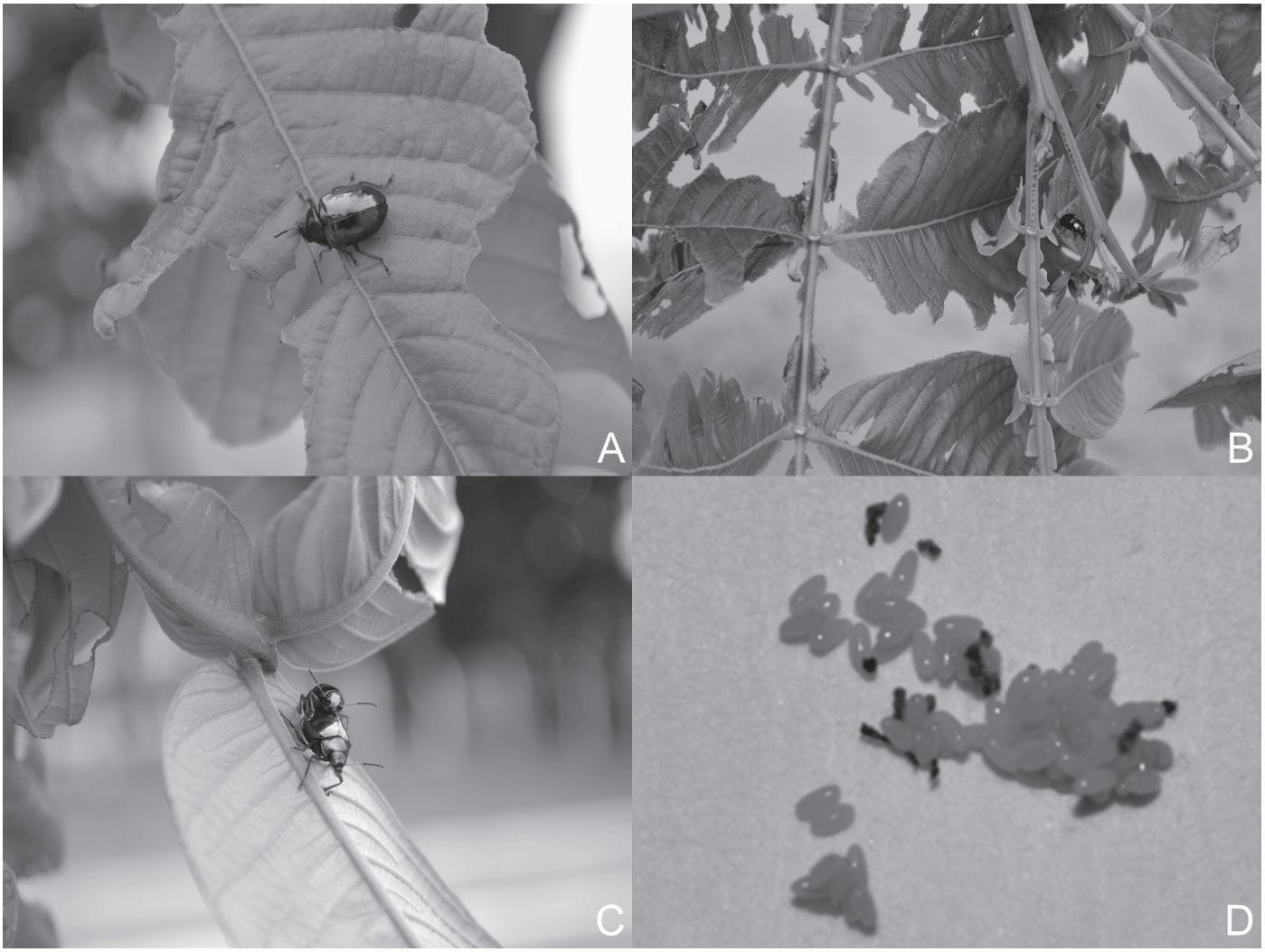


**Fig. 1.** *Iphimeis dives* (Coleoptera: Chrysomelidae) and its damage on *Inga edulis* (Fabaceae) (A, B), mating (C), and eggs (D).

by *I. dives* for feeding. The high number of *I. dives* in Nov in Lavras at the beginning of the rainy season agrees with the report for this insect from Oct to Dec 2004 and Oct to Dec 2005 in an orchard area in Ponta Grossa, Paraná State, Brazil (Milléo et al. 2013). *Iphimeis dives* was reported on *C. xanthocarpa* in Oct 2011 in Dois Vizinhos, Paraná State, Brazil (Luckmann et al. 2016). In Sep and Oct 2014, *I. dives* was reported on *P. vulgaris* in Assis Chateaubriand and Palotina, Paraná State, Brazil (Alves et al. 2016). Reports of *I. dives* in Paraná State from Sep to Dec coincided with the period of highest rainfall in this state (Waltrick et al. 2015) similar to that of its occurrence in Lavras in 2013 and 2014. *Inga edulis* should be included in the list of suitable *I. dives* host plants.

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## Summary

*Iphimeis dives* Germar (Coleoptera: Chrysomelidae) was recorded feeding on young and mature leaves of *Inga edulis* Mart. (Fabaceae) plants in the urban area of Lavras, Minas Gerais State, Brazil, in Nov 2013 and Nov 2014 at the beginning of the rainy season. *Iphimeis dives* males and females were brought to the laboratory for species identification, and fecundity characteristics (the proportion of females laying eggs, number of eggs per mass, and the period of time required for an act of oviposition) were determined. *Inga edulis* is added to the host plant list for *I. dives*. Each female of this species deposited 69.2 ± 10.6 eggs in a single mass in 2.6 ± 1.1 d (± SE).

Key Words: Eumolpinae; insect pest; legume; Mimosoideae; urban landscaping

## Resumo

Adultos de *Iphimeis dives* Germar (Coleoptera: Chrysomelidae) foram registrados alimentando-se de folhas jovens e maduras de plantas adultas de *Inga edulis* Mart. (Fabaceae) na área urbana de Lavras, Minas Gerais, Brasil em novembro de 2013 e novembro de 2014 no início da estação chuvosa. Machos e fêmeas de *I. dives* foram trazidos

ao laboratório para identificação da espécie e as características de fecundidade (número de ovos depositados, de massas de ovos e de ovos por massa e o período de oviposição) foram determinados. *Inga edulis* é adicionada à lista de plantas hospedeiras para *I. dives*. Cada fêmea desta espécie depositou 69,2 ± 10,6 ovos em uma massa única em 2,6 ± 1,1 dias (± EP).

Palavras Chave: Eumolpinae, inseto-praga, leguminosa, Mimosoideae, paisagismo urbano

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