

Scientific Note

Aphis craccivora Koch, 1854 (Hemiptera: Aphididae) infesting mahogany seedlings (*Swietenia macrophylla* King, Meliaceae) and scarlet jade vines (*Mucuna bennettii* F. Muell., Fabaceae)

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Abstract. *Aphis craccivora* Koch, 1854 (Hemiptera: Aphididae) is a highly polyphagous aphid that is considered a pest of many crops with economic interest. The present study reports the occurrence and plant damages caused by the aphid *A. craccivora* on mahogany seedlings (*Swietenia macrophylla* King, Meliaceae) and scarlet jade vines (*Mucuna bennettii* F. Muell., Fabaceae) in the Distrito Federal, Brazil. Infestations of this aphid were found in twelve mahogany seedlings and two scarlet jade vines. The infestations caused deformations in the young leaflets of mahogany plants as well as leaves and inflorescences of scarlet jade vine. *A. craccivora* negatively affected the development of *S. macrophylla* and might become a limiting factor for seedlings production.

Keywords: Aphididae, Hemiptera, Forest Entomology, Phytophagous Insect.

Mahogany (*Swietenia macrophylla* King, Meliaceae) from the Amazon has wood with high commercial value. The species is widely used in landscaping, including the afforestation of several cities (Carvalho 2007) and in programs to recover degraded areas. For the installation of mahogany cultivation to be successful, quality seedlings are essential. Pests and diseases can negatively affect the development of plants, hampering production and making the use of some seedlings impossible. Some arthropods have been observed to damage young mahogany plants, including scale insects and mites (Castro et al. 2018; 2019a; 2019b; 2020).

Scarlet jade vine (*Mucuna bennettii* F. Muell., Fabaceae) is an exotic ornamental vine very common in several Brazilian regions and is one of the most used vines for landscaping in urban environments (Fenyő 2013; Lorenzi 2013). This perennial and robust plant exhibits long and showy inflorescences, of the raceme type, pendants, and bright reddish coloration (Lorenzi 2013). It can be found in several points of Brasília, including in local florists. So far, there are no records of insects associated with this species in Brazil.

The present study reports the occurrence and plant damages caused by the aphid *Aphis craccivora* Koch, 1854 (Hemiptera: Aphididae) on mahogany seedlings and scarlet jade vines in the Distrito Federal, Brazil.

Aphids infesting twelve mahogany seedlings about one month old and two scarlet jade vines, planted next to mahogany seedlings, were collected in October 2019 in Distrito Federal, Brazil (15°56'55.2"S 48°10'00.8"W). The seedlings of mahogany were produced outdoors in plastic trays containing a mixture of soil with Plantmax® substrate. No pesticides were applied during seedling production. Both jade vines were planted in June 2017 using two pits 30 cm deep. Subsequently, they were fertilized with matured cattle manure immediately after they were transplanted and one year after transplanting. The seedlings were watered daily for the first few weeks and then weekly.

The aphids collected in mahogany and red jade were fixed in Falcon® tubes containing 70% alcohol, subsequently mounted on microscope slides, following the methodology described by Ilharco & Gomes (1981) and identified with the aid of a microscope using a

taxonomic key proposed by Holman (1974). The insects are deposited in the Collection of aphids - COLEAFIS - of the Laboratory of Applied Entomology (LEA), Department of Ecology and Evolutionary Biology (DEBE) of the Federal University of São Carlos (UFSCar) under the numbers 1541 (from mahogany) and 1542 (from red jade).

The aphids collected from the two host plants were identified as *A. craccivora*. The aphids were observed covering a large part of the top of the twelve mahogany seedlings, infesting newer leaves and buds (Fig. 1), causing leaflet curl and deformation in the apical bud.

In scarlet jade vine, *A. craccivora* attacked mainly new shoots, causing deformities in newly emerged buds and leaves (Fig. 2). In addition, the aphid was observed on flower buds in large quantities, resulting in an abundant release of honeydew, making the flower stems sticky and with a light presence of the fungus *Capnodium* sp., which causes sooty mold. Some natural enemies, such as larvae and adults of *Cycloneda sanguinea* (Linnaeus, 1763) (Coleoptera: Coccinellidae) and larvae of Syrphidae (Diptera), were observed feeding on aphids during the execution of this study.

The suborder Sternorrhyncha (Hemiptera) includes small insects commonly known as scale insects, aphids, whiteflies, and psyllids and are all phytophagous, most feeding on the phloem of angiosperms and some gymnosperms (Carver et al. 1991). The Aphidoidea superfamily is home to aphids, which are small, soft-bodied insects often found in large colonies. These insects have great economic importance, especially in the agricultural area, due to their intense sap sucking and ability to transmit pathogens, mainly viruses (NG & Perry 2004; Triplehorn & Johnson 2011; Fujihara et al. 2016).

Aphis craccivora is a polyphagous and cosmopolitan aphid with the highest occurrence in plants of the Leguminosae family; however, it has already been observed in association with more than 50 botanical families (Blackman & Eastop 2007; 2020). In Brazil, this aphid is considered an important cowpea pest (Silva et al. 2005) and was recently described in association with the *Dalbergia miscolobium* Benth. (Leguminosae), a tree species native to the Brazilian Cerrado (Castro et al. 2019c).

Several species of polyphagous aphids colonize species of the

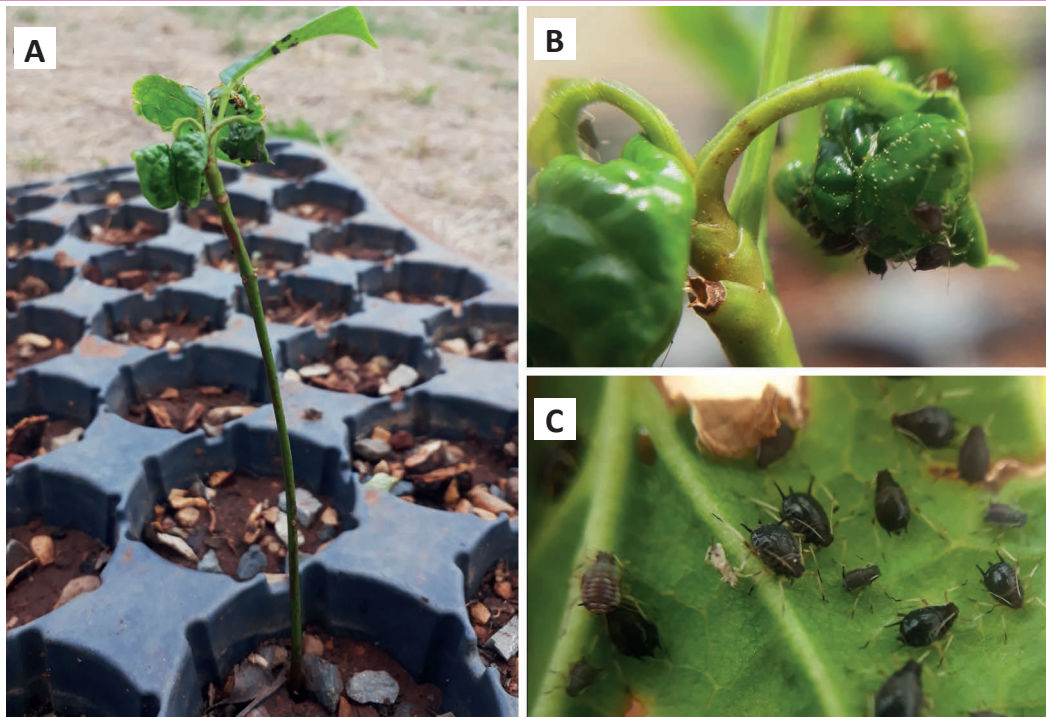


Figure 1. *Aphis craccivora* infesting seedlings of mahogany (*Swietenia macrophylla*). A - *S. macrophylla* seedling attacked by the aphid. B - Rolled up leaflets caused by *A. craccivora*. C - Detail of *A. craccivora* on mahogany leaves.

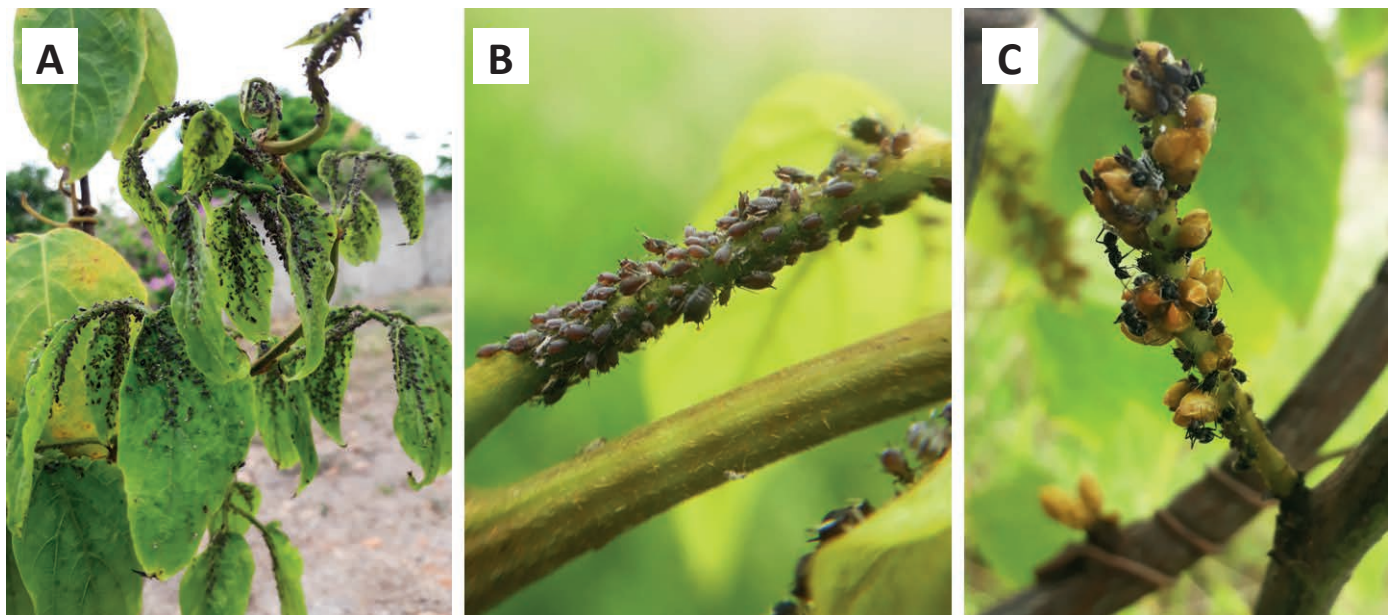


Figure 2. *Aphis craccivora* infesting plants of scarlet jade vine (*Mucuna bennettii*). A - Scarlet jade vine attacked by the aphid. B - Detail of *A. craccivora* colony on a branch of scarlet jade. C - *A. craccivora* in scarlet jade inflorescence.

genus *Mucuna* around the world (Blackman & Eastop 2020). In Brazil, occurrence of *A. craccivora* and *Aphis fabae* Scopoli, 1763 has been reported on *M. pruriens* (Sousa-Silva & Ilharco 1995), aphids have never been associated with *M. bennettii*.

No aphid species had ever been reported in association with genus *Swietenia* in the world (Blackman & Eastop 2020); thus, its occurrence on *S. macrophylla* was unprecedented. *A. craccivora* negatively affected the development of *S. macrophylla* and might become a limiting factor for producing seedlings of this species in the Cerrado region.

Author's Contributions

MTC: Performed the material collection and analysis; wrote the manuscript. **SCLM:** Performed the material collection and analysis; wrote the manuscript. **SBZC:** Performed the analysis; wrote the manuscript. **RGM:** Contributed to the interpretation of the results.

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