Article

# Two new host plant records for Asian weaver ant (*Oecophylla smaragdina* Fab., 1775)

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## Abstract

The Asian weaver ant, *Oecophylla smaragdina* Fab., 1775 is an arboreal ant species, which constructs leaf nests in the upper canopy of trees. This ant species is distributed in the tropical regions of Asia, Australia, and western Pacific islands. Being an arboreal ant, *O. smaragdina* has a mutualistic association with its host plants. Approximately 175 plant species have been recorded as host plants of *O. smaragdina*. In this study, *Hibiscus rosa-sinensis* L., a common garden plant belonging to family Malvaceae, and *Heliconia rostrata* Ruiz & Pav., an ornamental plant belonging to family Heliconiaceae are being reported as host plants of *O. smaragdina*.

Keywords ant-plant interaction, Heliconia rostrata, Hibiscus rosa-sinensis, myrmecophily.

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#### **1** Introduction

The Asian weaver ant, *Oecophylla smaragdina* (Hymenoptera: Formicidae) is among the most iconic tropical ants, widespread in the old world tropics and presenting the most sophisticated nest-building activities (Crozier et al., 2010). Weaver ants use the silk produced by their larvae to build nests from leaves spun together (Hölldobler and Wilson, 1990). They establish huge polydomous colonies on several trees, and these colonies may contain hundreds of thousands of worker ants (Blüthgen and Fiedler, 2002). The workers are highly polymorphic, and show complex polyethism, with the larger major workers defending the territory, while the smaller minor workers nurse the brood (Kamhi et al., 2015). They present a rich pheromonal repertoire for the colony's tasks (Crozier et al., 2010).

Weaver ants are often found on plants with insect symbionts (trophobionts) (Lim et al., 2008). These ants play an important role in their ecosystems by competitive dominance over other ant species, and by acting as predators of other arthropods (Thurman et al., 2019). They are economically important as biological control agents of the pests of their host plants (Peng et al., 2010), as edible insects (Doloi and Basumatari, 2024), and also for treating diseases (Rastogi, 2011). They are found on a large number of host plants, and a

comprehensive list of their host plant species has been prepared by Lim et al. (2008). In recent times, golden trumpet (*Allamanda cathartica* Linn., 1771) has been recorded as a host plant of weaver ants (Gajbe and Badiye, 2023) In the present study, two new host plants of weaver ants are being reported.

## 2 Materials and Methods

The present study was conducted in Nagpur city (C. 21.1498°N 79.0806°E) in February 2025. Nagpur is located in Central India, and its climate is tropical wet and dry, with dry conditions dominating most of the year. The monsoon rains continue from June to September and the average annual rainfall is 1064 mm (GOM, 2024). During a survey of weaver ant nests in a garden in east Nagpur, weaver ant leaf nests were spotted on a *Hibiscus rosa-sinensis* plant and a *Heliconia rostrata* plant. The ant nests and the host plants were photographed for helping in identification.

#### **3** Results and Discussion

During the study, a weaver ant nest was observed on a large *Hibiscus rosa-sinensis* plant. The nest was located on an upper and outward-oriented branch of the plant and was globular in appearance (Fig. 1). A few weaver ant nests were observed on a mango (*Mangifera indica*) tree, in the vicinity of the Hibiscus plant. Two large weaver ant nests were also observed on a *Heliconia rostrata* plant. Weaver ant nests are generally globular in shape. However, *Heliconia rostrata* has long and broad plantain-like leaves. This resulted in weaver ants constructing leaf nests that were longer than wide, and having a tubular shape, as evident from the photographs (Figs. 2-3). The *Heliconia rostrata* plant was found growing close to a lime tree (*Citrus aurantifolia*), which had a few weaver ant nests.



Fig. 1 Weaver ant nest on *Hibiscus rosa-sinensis*.



Figs. 2-3 Weaver ant nests on *Heliconia rostrata*.

*Hibiscus rosa-sinensis* is a bushy evergreen shrub or small tree, widely cultivated as an ornamental plant in tropical and sub-tropical countries, and belongs to the Malvaceae family. *Oecophylla smaragdina* has been recorded on 175 plant species, which also include the following species of Malvaceae family: *Argyrodendron peralatum, Bombax ceiba, Brachychiton acerifolius, Ceiba pentandra, Heritiera littoralis, Sterculia quadrifida, Talipariti tiliaceum*, and *Theobroma cacao* (Lim et al., 2008). Currently, 438 species are accepted in the genus *Hibiscus* (POWO, 2025). A review of literature (Lim et al., 2008; Vayssières et al., 2022) reveals that there is no previous record of *Hibiscus rosa-sinensis* as a host plant of weaver ants.

*Heliconia rostrata* is a rhizomatous, herbaceous and perennial plant, and is commonly known as 'Lobsterclaws', 'Wild plantains' or 'False bird of paradise' (Malakar et al., 2015). The flowers of this plant are a good source of nectar, and a large number of weaver ants were observed on the flowers (Fig. 4). There is no previous record of any species of family Heliconiaceae as a host plant of weaver ant (Lim et al., 2008; Vayssières et al., 2022).

Due to its arboreal habit, the weaver ant has a very close association with its host plants. Generally, it feeds on sugary liquids (e.g., extrafloral nectar and honeydew) and many kinds of arthropods by foraging on the flushing parts of trees (Peng et al., 1997). Being a generalist predator, the weaver ant plays an important role as a biological control agent. They are one of the most effective and efficient predators of arthropods in perennial tropical tree crops, and their presence also acts as a deterrent to insect herbivores (Vayssières et al., 2016).



Fig. 4 Weaver ants on Heliconia rostrata flower.

They are effective in controlling over 50 species of insect pests on many tropical tree crops and forest trees (Peng et al., 1997). Weaver ants show territorial behaviour and are very aggressive towards encroaching neighbours or against floaters who seek to establish their own territory (Newey et al., 2010). Hence, their aggressive nature may also have a negative effect on the visiting rate of pollinator insects of the host plants (Tsuji et al., 2004). Weaver ants are a good source of protein, and are consumed by tribals in different parts of India (Jena et al., 2020). Conservation of the host plants of weaver ants may help in enhancing the biological control role performed by these ants in their ecosystems.

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