

## Dispersal of *Miconia cabucu* seeds by ant *Trachymyrmex* spp.

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### Summary

The influence of ants (*Trachymyrmex*) on *Miconia cabucu* seed dispersal is reported. *M. cabucu* is a common tree of secondary forest in South Brazil tropical rain forest. The ants eat the sweet, juicy pericarp of *M. cabucu*, gathering fruit fragments with seeds attached. The seeds dropped or lost along the way may germinate and establish plants at a new site. The seeds that were carried back to the ant nest may benefit from being placed in these ant colonies, because the photoblastic seeds show an increased vigor after remaining in dark conditions for some time.

### Resumo

A influência de formigas do gênero *Trachymyrmex* na dispersão de sementes de *Miconia cabucu* é relatada. *M. cabucu* é uma espécie arbórea comum nas formações secundárias da floresta tropical atlântica no sul do Brasil. As formigas se alimentam da polpa adocicada e macia dos frutos de *M. cabucu*, carregando para seus ninhos pequenas porções de frutos com

sementes aderidas. As sementes perdidas ao longo do caminho podem germinar e estabelecer novas plantas, e mesmo as sementes depositadas nos ninhos (formigueiros) poderiam ser beneficiadas, já que as sementes fotoblásticas de *M. cabucu* exibem um acréscimo de vigor após um período de permanência no escuro.

**Key Words:** Ant, Brazil, *Miconia*, seed dispersal

In the course of field work in connection with an investigation of embryology and anatomy of *Miconia cabucu* Hoehne (Melastomataceae), a common tree of secondary forest in south Brazil tropical rain forest, the influence of ants (*Trachymyrmex* spp.) on fruit removal and seed dispersal was observed.

Many tropical plants produce edible fruits and rely on frugivores to effect seed dispersal. 60% of the neotropical Melastomataceae have soft, juicy berries and endozoochorous seeds (Renner, 1989). The small berries are of outstanding importance for small frugivorous birds throughout the neotropics (Hoehne, 1944; Huber, 1910; Renner, 1989; Snow, 1971). Small, succulent and many seeded fruits, like *Miconia* berries, apparently represent a tendency in the tropics, and are characteristic of secondary forest species (Snow, 1971).

According to Renner (1989) different animal classes act as the principal dispersers in different species groups of the neotropical Melastomataceae, including birds, monkeys and bats. The fruits that have fallen to the ground are often eaten by turtles, lizards, rodents, tapirs and ants.

Ants disperse seeds through two general mechanisms. One depends on inefficiencies in the activities of harvester ants, which gather large quantities of seeds, transport them to their nests and eat them. The dispersal mechanism is mainly related with the seeds lost along the way. The other mechanism involves plants that produce an elaiosome, a fat body that is near or attached to a seed. The ants eat the elaiosome and discard the seed unharmed (see Handel & Beattie, 1990).

*M. cabucu* seeds don't bear elaiosomes; the ants eat the sweet, juicy pericarp, gathering fragments of pericarp with seeds attached. The small seeds have a hard testa, so the ants digest the fleshy part and discard intact seeds. Probably many seeds are dropped or lost along the way, they may germinate and establish plants at a new site, however, paradoxically, the

seeds that were carried back to the ant nest may benefit from being placed in these ant colonies, because the photoblastic *M. cabucu* seeds show an increase in vigor after remaining in dark conditions for some time (Queiroz & Fiamoncini, pers. comm.).

Ants have been observed carrying seeds along one to seventy meters (Handel & Beattie, 1990); the area covered by birds is clearly larger than this distance, but the transportation of *M. cabucu* seeds by ants may be advantageous for the plants, since they show an apparent middle hillside restriction on their distribution (Medeiros, 1993).

Although the relationship between *M. cabucu* and *Trachymyrmex* spp. is not a tight, mutualistic one, and has been preliminarily reported here, it can serve as a good matter for further studies of the benefits of myrmecochory for plants and ants, helping to elucidate details of mutualistic relationships and their evolutionary consequences.

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