



Dioscorea flabellispina (Dioscoreaceae), a new endangered species from the Brazilian Atlantic Rainforest

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Abstract

Dioscorea flabellispina is endemic to small, low elevation fragments of the Atlantic Rainforest in southeastern Brazil, occurring on rocky outcrops in the states of Rio de Janeiro and Espírito Santo. Based on the number and form of thorns present on the stem (5–8 thorns with a fan-like form at the node), this new species is easily recognizable morphologically and possesses characteristics unique to the Neotropical *Dioscorea*. Presenting only a few individuals in each population, this rare and endangered species is only known from three sites surrounded by a vegetation matrix degraded by human impact and overrun by invasive alien species. *Dioscorea flabellispina* does not occur in any officially protected area in Brazil, placing the species at increased risk. Herein we present the morphological description of this species, including a discussion of its ecology, distribution, and conservation status.

Key words: Critically threatened species, Dioscoreales, endemism, Flora of Rio de Janeiro

Introduction

With over 139 of the 650 described species of *Dioscorea* Linnaeus (1753: 1032) (Kirizawa *et al.* 2015), Brazil has the greatest diversity of this genus in the world (The Plant List 2015, eMonocot 2015). Also, with 74% of *Dioscorea* species (103 spp.) occurring exclusively in Brazil, the rates of endemism for the family is very high. The Atlantic Forest plays an important role in the rate of diversity and endemism, with 80 of the Brazilian species occurring in this biome, including 46 species endemic to this biogeographic region.

Plants of *Dioscorea* in the Neotropics usually grow in well-drained soils rich in organic matter, with the greatest number of species occurring on the edge of Dense Ombrophilous Forest, however, species are recorded from fairly moist soils to desertlike environments. Species of *Dioscorea* are easily recognized by their usually climbing habit, with leaves usually cordate and at least three curved veins stretching across the limb, from the insertion of the petiole to the apex. For the most part, plants are dioecious, with inflorescences in racemes or spikes, male flowers with 3 or 6 stamens and female flowers with 3 stigmas, fruits usually tri-winged capsules.

While investigating the diversity and ecology of Dioscoreaceae of the Atlantic Forest, a new species of *Dioscorea* was discovered in northwestern Rio de Janeiro State, one of the most devastated regions of the Brazilian Atlantic Forest. *Dioscorea flabellispina* has very unusual features distinguishing it from other species of the genus, *i.e.*, multiple thorns arising from the stem at the point of insertion of the petiole base, forming a “fan” of thorns, which is unique among Neotropical species and thus facilitates its taxonomic identification.

Material and Methods

Dioscorea flabellispina was described and illustrated by composite line drawings from dried material. The new species was carefully compared with *Dioscorea* specimens from BR, C, CAY, CESJ, COAH, COL, CR, CUVC, CVRD,