



A Molecular Systematic Analysis of *Passiflora ovalis* and *Passiflora contracta* (Passifloraceae)

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Abstract

Passiflora ovalis and *P. contracta* are species restricted to the Atlantic Rainforest (Mata Atlântica) of Brazil and were separated into two distinct taxonomic units based on different morphological traits, as inflorescence structure and indument, being the populations located between 7–19°S referred to *P. contracta*, while those found around 23°S belong to *P. ovalis*. Recently the species were grouped together under the specific name *P. ovalis*. The objective of this work was to understand the taxonomy of these species based in a Bayesian phylogenetic analysis using a combination of molecular markers from plastidial and nuclear genomes. The results confirmed the existence of two distinct species supported by full posterior probability values. We consequently propose accepting the two-species, which also have been validated both by morphologic differences and distinct geographic distribution.

Key words: genetic variability, molecular markers, molecular phylogeny, *Passiflora*

Introduction

Passiflora L. is the largest genus within the family Passifloraceae, with more than five hundred species (Ulmer & MacDougal 2004), and its infrageneric classification has been in flux. More recently, molecular phylogenetics has helped to clarify this classification (Muschner *et al.* 2003, 2012, Hansen *et al.* 2006) and has been used to move closely related genera to within *Passiflora* (Muschner *et al.* 2003, Krosnick & Freudenstein 2005).

These molecular analyses have improved the taxonomy and helped to understand the evolutionary relationships among the subgenera and species within *Passiflora* (Lorenz-Lemke *et al.* 2005, Muschner *et al.* 2006, 2012, Hansen *et al.* 2007, Mäder *et al.* 2010, Yotoko *et al.* 2011). However, many questions remain unanswered, especially in relation to the phylogenetic position or taxonomic status of particular species. The taxonomic classification of species is traditionally based on morphological characters and is complicated by the large amount of variability found among foliar and floral characteristics (Cervi & Rodrigues 2010, Yotoko *et al.* 2011, Cutri *et al.* 2012).

According the current classification (Feuillet & MacDougal 2003), *Passiflora* is divided in four subgenera: *Astrophea* (DC.) Mast., *Decaloba* (DC.) Rchb., *Passiflora* L. and *Deidamioides* (Harms) Killip. This classification is supported by molecular phylogenetic studies (Muschner *et al.* 2003, 2012, Hansen *et al.* 2007).

The *Passiflora* subgenus *Deidamioides* is comprised of 13 species distributed mainly in the Northwestern region of South America, and all but two species are characterized as having flowers born directly on the tendrils and other basal characteristics of the genus (Ulmer & MacDougal 2004). This subgenus also includes the former monotypic genus *Tetrastylis*, regarded by Killip (1938) as a “primitive” genus in Passifloraceae and now accepted in *Passiflora* as *P. ovalis* Roemer (Cervi 2006).