



## Synopsis of the genus *Galactia* (Phaseoleae, Papilionoideae, Leguminosae) in Brazil

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### Abstract

A synopsis of the genus *Galactia* (Leguminosae) in Brazil, including taxonomy, ecology, economic potential, and conservation is presented. A taxonomic key, description of one new species (*Galactia cordifolia*), new synonyms, illustrations, a brief description of the main diagnostic characters of each species, and notes on distribution, ecology and uses are presented.

### Introduction

*Galactia* Browne (1756: 32) is a pantropical genus growing on all continents except Europe and the Polar Zones. Despite being widely distributed and having its centre of richness in the American continent, there are few published studies concerning *Galactia*. In the Neotropics there are treatments for Cuba by Beyra-Matos *et al.* (2005) and Venezuela by Torres *et al.* (1983). For Brazil, there have been few taxonomic studies of *Galactia* since the publication of the Flora Brasiliensis (Bentham 1859). Even Burkart's (1971) monograph for the whole of South America (with special reference to Argentina) did not include complete information for many regions. Burkart was well aware of the gaps in his treatment, especially for Central and Eastern Brazil.

The synopsis of *Galactia* in Brazil presented here arose from the growing need to deal with the large amount of misidentified specimens deposited in Brazilian herbaria, mainly due to the complex taxonomy of the genus. Firstly, it is not possible to diagnose *Galactia* by a single, striking autopomorphic character; instead, we recognize it by eliminating other closely related genera, in a stepwise manner. Firstly, the calyx of *Galactia* species has 4 lobes, because the uppermost lobe results from the fusion of the two vexillary lobes that are usually separate in most other Papilionoid genera. If the specimen being identified does have four calyx lobes, one then needs to look at flower colour: in *Galactia* the corolla is never yellow; pink, purple and lilac being the most common colours (rarely red). Next, the inflorescences of *Galactia* are always nodose pseudoracemes. Finally, the ovary in *Galactia* is always sessile, with the exception of *G. marginalis* Bentham (1837: 62) which bears a small stipitate ovary, but the stipe is never more than half the ovary length. Nevertheless, even relying on this suite of characters, there is no guarantee of confidently identifying a species of *Galactia* and this, in part, is because there is still no comprehensive phylogeny of the whole genus. The available published phylogenies are not overviews of the whole genus; rather they are mostly regional accounts (e.g., Sede *et al.* 2008, 2009). The absence of a well-sampled phylogeny means that the generic boundaries are poorly delimited amongst *Galactia sensu lato* and its close allies, such as *Collaea* De Candolle (1825: 46) and *Camptosema* Hooker & Arnott (1833: 200). Even the total number of species within *Galactia* is currently unknown, being approximately 60±5, depending on the author (Burkart 1943, 1952, 1971; Schirire 2005; Fortunato *et al.* 2008; Sede *et al.* 2008, 2009).