



Lacomucinaea, a new monotypic genus in Thesiaceae (Santalales)

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Abstract

A new monotypic genus from southern Africa is described based on *Thesium lineatum*. *Lacomucinaea lineata* has a number of vegetative and floral morphological features that differ from *Thesium* and other members of Thesiaceae. An apparently unique feature of the plant is the presence of succulent, fusiform, terete leaves that are caducous, eventually leaving a persistent petiolar stub. The stem surface shows striations formed by cortical fibers inside raised ridges. Anatomically, this type of primary phloem fiber bundle also occurs in *Osyridicarpos*. A molecular phylogenetic analysis using nuclear ribosomal ITS and the chloroplast *trnLF* spacer for representatives of all genera in Thesiaceae showed that *Lacomucinaea* is sister to *Osyridicarpos*, further supporting this relationship suggested by stem anatomy characters. Recognizing this taxon as a distinct genus results in the genus *Thesium* being monophyletic. A key to all genera in Thesiaceae is provided.

Key words: parasitic plant; Santalaceae; flora of South Africa; taxonomy; *Thesium*

Introduction

The largest genus in the sandalwood order (Santalales) is the root hemiparasite *Thesium* Linnaeus (1753: 207). Found in Africa, Europe, Asia, Australia, South America and North America (by introduction), *Thesium* is most diverse in South Africa where at least half the ca. 350 species are found. Although traditionally classified in Santalaceae, a molecular phylogenetic study (Der & Nickrent, 2008) identified six clades that were later classified at the family rank (Nickrent *et al.* 2010). Thus, *Thesium* was included in Thesiaceae along with five other genera: *Buckleya* Torrey (1843:170) is a genus of shrubs with five species disjunct in the eastern USA and eastern Asia. *Kunkeliella* Stearn (1972: 17), is composed of at least four species endemic to the Canary Islands. *Osyridicarpos* Candolle (1857a: 635) is widespread from tropical Africa to South Africa and is considered monospecific (Stauffer, 1961). Finally, *Thesidium* Sonder (1857: 364) is a small group of ca. nine species of South Africa, segregated from *Thesium* based mainly on the monoecious sexual state. Apart from *Kunkeliella*, these generic concepts follow those presented in Pilger (1935). That classification placed *Buckleya* in tribe Osyrideae and *Osyridicarpos*, *Thesidium* and *Thesium* in Thesieae along with *Arjona* Commerson ex Cavanilles (1797: 57) and *Quinchamalium* Molina (1782: 151), the latter two shown by Der & Nickrent (2008) to be in Schoepfiaceae.

A general review of the taxonomic history of *Thesium* was presented in Moore *et al.* (2010). Briefly, the first infrageneric classification was by Reichenbach (1828) who recognized three sections: *Thesium* (of Europe), *Thesiosyris* (of South Africa), and *Frisea* (of South Africa). Alphonse de Candolle (Candolle, 1857a, b) recognized 112 species of *Thesium* worldwide. This classification contained six sections: *Euthesium*, *Aetheothesium*, *Discothesium*, *Frisea*, *Chrysothesium* and *Psilothesium* (the South American species), losing his former section *Hagnothesium* by recognizing *Thesidium* as distinct (following Sonder 1857). The most comprehensive treatment of *Thesium* worldwide was that proposed by Hendrych (1972). Hendrych segregated two genera from *Thesium*, *Chrysothesium* (Jaubert & Spach) Hendrych (1994: 319; formerly section *Chrysothesium*) to accommodate three species from Turkey and one from Central Asia (Hendrych, 1994), and *Austroamericium* Hendrych (1963: 126) which included three species from Venezuela and Brazil. Following the molecular work by Moore *et al.* (2010), and based on the concept that genera should be monophyletic (Backlund & Bremer, 1998), Forest & Manning (2013) formally included *Thesidium* in *Thesium* sect. *Hagnothesium*. Also, based on the topology of the molecular tree in Der & Nickrent (2008), they included *Kunkeliella* in *Thesium* sect. *Kunkeliella*.