



## A taxonomic revision of the *Solanum echinatum* group (Solanaceae)

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### Abstract

The taxonomy of *Solanum echinatum* and its allies is revised. Seven species are enumerated, all endemic to tropical Australia, including four new species: *S. fecundum* sp. nov., *S. lapidosum* sp. nov., *S. medicagineum* sp. nov., and *S. raphiotes* sp. nov. *Solanum longissimum* is reduced to synonymy, and *S. wilkinsii* is reinstated. Illustrations are provided for all species. The distributions of all species are mapped, and an identification key is included.

**Key words:** Australia, *Solanum* subgenus *Leptostemonum*, *Solanum lucani*

### Introduction

*Solanum echinatum* Brown (1810: 447) was described by Robert Brown in 1810, from a specimen taken from North Island in the Gulf of Carpentaria, in northern Australia. He distinguished it from other *Solanum* Linnaeus (1753: 184) species by the ‘almost quadrilobular berry enclosed by the spiny calyx’. Ferdinand Mueller described a second member of the group, *S. lucani* Mueller (1893: 175), based on a Cambridge Gulf collection by Augustus Lucanus. A third member, *S. wilkinsii* Moore (1926: 95) was described from Groote Eylandt in the Gulf of Carpentaria.

Symon (1981) revised the taxonomy of the genus *Solanum* in Australia. He accepted *S. echinatum* and *S. lucani*, described *S. seitheae* Symon (1981: 201) as new, and placed *S. wilkinsii* in synonymy with *S. echinatum*.

Bean (2004) added the newly described *S. longissimum* Bean (2004: 795) to the list of species in the group, but placed *S. seitheae* in the synonymy of *S. echinatum*. He noted the existence of further unnamed taxa in the Northern Territory and foreshadowed the resurrection of *S. wilkinsii*. He also established *S. echinatum* and its allies as a distinct taxonomic group, as the informal group 27E, based on the numbering system used by Whalen (1984), and provided some diagnostic characters for the group.

Members of the *S. echinatum* group can be readily identified from fruiting specimens, because the fruiting calyx is accrescent, covering all or most of the fruit. Furthermore, the fruits are frequently oblate, and somewhat square in transverse section. There is often more than one fruit on an infructescence, as fruits can potentially develop from all flowers (i.e. not andromonoecious or dioecious). Flowering specimens of members of the *S. echinatum* group are not so easily recognisable, but the lack of short-styled flowers, the glabrous style and ovary with the style not bi-lobed, and the presence of abundant calyx prickles at or soon after anthesis are characteristic of the group.

Limited molecular studies have been completed involving *Solanum echinatum*. Martine *et al.* (2006) found that there is a weakly supported relationship between *S. echinatum* and the *S. dioicum* Fitzgerald (1918: 203) complex. Levin *et al.* (2006) included *S. echinatum* in their phylogenetic analysis, where it appeared in a largely unresolved ‘Old World’ clade, with species such as *S. cleistogamum* Symon (1971: 227).