



## Synopsis of *Euphorbia* (Euphorbiaceae) in the state of São Paulo, Brazil

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### Abstract

*Euphorbia* is the largest genus of Euphorbiaceae and is among the giant genera of Angiosperms. In the state of São Paulo, the genus is represented by 23 species occurring in savannas, high altitude fields, and anthropic areas. This work includes an identification key, photographs, and comments on morphology, habitat, and geographical distribution. We reestablish *Euphorbia chrysophylla* and recognize *Leptopus brasiliensis* as a synonym of *Euphorbia sciadophila*. Six new records for the state of São Paulo are presented: *Euphorbia adenoptera*, *E. bahiensis*, *E. chrysophylla*, *E. cordeiroae*, *E. foliolosa* and *E. ophthalmica*. Eight lectotypes are designated.

**Key words:** Neotropical flora, nomenclatural notes, taxonomy

### Resumo

*Euphorbia* é o maior gênero de Euphorbiaceae e está entre os maiores de Angiospermas. No Estado de São Paulo, está representado por 23 espécies ocorrendo no cerrado, campos de altitude e áreas antrópicas. Este trabalho inclui uma chave de identificação, comentários sobre morfologia, habitat e distribuição geográfica. Reestabelecemos *Euphorbia chrysophylla* e reconhecemos *Leptopus brasiliensis* como sinônimo de *Euphorbia sciadophila*. Seis novas ocorrências para o Estado de São Paulo são apresentadas: *Euphorbia adenoptera*, *E. bahiensis*, *E. chrysophylla*, *E. cordeiroae*, *E. foliolosa* e *E. ophthalmica*. Oito lectótipos são designados.

### Introduction

Euphorbiaceae are one of the most diverse and complex families of Angiosperms, with 246 genera and 6,300 species distributed worldwide, mainly in the tropics (Govaerts *et al.* 2000, Wurdack & Davis 2009). In Brazil, the family is represented by 63 genera and about 1,000 species distributed all over the country, and in the state of São Paulo it accounts with 37 genera and approximately 160 species (Cordeiro *et al.* 2013, Caruzo & Cordeiro 2007).

*Euphorbia* Linnaeus (1753: 450), with approximately 2,000 species, is ranked as the fourth biggest genus of flowering plants (Frodin 2004) and is the largest one of Euphorbiaceae (Horn *et al.* 2012). The genus is renowned for its remarkable morphological diversity and diverse growth forms and is characterized by the cyathium, a pseudanthial inflorescence unique in Angiosperms, which consists of four or five staminate cymules surrounding a terminal pistillate flower within a cup-like involucre formed by the fusion of bracts from the staminate cymules. The cyathium has glands along its rim, and the glands can sometimes have appendices (Webster 1994, Radcliffe-Smith 2001, Horn *et al.* 2012, Yang *et al.* 2012).

The cyathium is taxonomically very important for the identification of species and was once used to segregate genera within subtribe Euphorbiineae (Webster 1994, Radcliffe-Smith 2001). These genera include *Chamaesyce* Gray (1821: 260), *Cubanthus* (Boissier 1862: 7) Millspaugh (1913: 371), *Elaeophorbia* Stapf (1906: 646), *Endadenium* Leach (1973: 31), *Monadenium* Pax (1894: 126), *Pedilanthus* Necker ex Poiteau (1812: 388), *Poinsettia* Graham (1836: 412), and *Synadenium* Boissier (1862: 187). After Steinmann & Porter's (2002) molecular phylogenetic work, all these genera are now recognized inside *Euphorbia s.l.*, since their acceptance would turn *Euphorbia* into a paraphyletic group (Bruyns *et al.* 2006, Zimmermann *et al.* 2010).

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## Appendix 1: Numerical list of taxa and list of collections examined

### Numerical list of taxa

1. *Euphorbia adenoptera*
2. *Euphorbia bahiensis*
3. *Euphorbia chrysophylla*
4. *Euphorbia comosa*
5. *Euphorbia cordeiroae*
6. *Euphorbia elodes*
7. *Euphorbia foliolosa*
8. *Euphorbia heterophylla*
9. *Euphorbia hirta*
10. *Euphorbia hyssopifolia*
11. *Euphorbia insulana*
12. *Euphorbia ophthalmica*
13. *Euphorbia papillosa*
14. *Euphorbia peperomioides*
15. *Euphorbia peplus*
16. *Euphorbia potentilloides*
17. *Euphorbia prostrata*
18. *Euphorbia rhabdodes*
19. *Euphorbia sciadophila*
20. *Euphorbia serpens*
21. *Euphorbia setosa*
22. *Euphorbia thymifolia*
23. *Euphorbia zonosperma*