

Boraginaceae sensu APG

for the Flora of Thailand

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ABSTRACT: According to APG IV, the Boraginaceae *sensu lato* consists of c. 135 genera and 2535 species of largely tropical trees and shrubs, although herbaceous genera are common in the Mediterranean region and warm-temperate Asia. Twelve genera and 49 species are recognised in Thailand. *Cordia* and *Ehretia* are the largest genera with 16 and 10 species respectively. *Euploca* and *Tournefortia* each comprise of 5 species, *Cynoglossum* and *Trichodesma* each have 3 species, *Heliotropium* has 2, and *Carmona*, *Coldenia*, *Maharanga*, *Onosma* and *Rotula* each have one species. Revisions of all the genera except *Cordia* are more or less complete. One unknown specimen of *Ehretia* is possibly an undescribed species.

INTRODUCTION: Boraginaceae s.s. range from trees, and shrubs to annual herbs. The distinct characteristics are the scorpioid cymose, the flower is bisexual, fruit is mostly a drupe or consists of four seeds. Species of the family are well known as an important source of borage seed oil extracted from seeds of *Borago officinalis* L. The member of *Myosotis* or forget-me-not is cultivated as ornamentals.

Recently, Boraginales has been accepted with 11 families based on morphology and molecular phylogeny by Luebert *et al.* (2016). Fletcher and Kerr (1951) were the first botanists who listed Boraginaceae with nine genera and 35 species in *Florae Siamensis Enumeratio*. In the latest treatment, 36 species with 10 genera were recognised (Rueangsawang & Chantaranothai, 2010). The purpose of the study is to provide an updated account of Boraginaceae s.s. in Thailand.

MATERIALS AND METHODS: This study is based on specimens from major herbaria: AAU, BK, BKF, BM, CMU, C, E, K, KKU, L, QBG and SING and fieldwork in Thailand. Morphological characteristics are taken from living or dried specimens. Ecological data and distribution are also provided.

RESULTS AND CONCLUSION: Twelve genera and 49 species are recognised in Thailand. *Cordia* and *Ehretia* are the largest genera of the family, comprising 16 and 10 species, respectively. The others are five species each in *Euploca* and *Tournefortia*, three in *Cynoglossum* and *Trichodesma*, two in *Heliotropium* and one species each in *Carmona*, *Coldenia*, *Maharanga*, *Onosma* and *Rotula*. The highest number of species is recorded in northern Thailand. *Maharanga lycopsioides* and *Onosma burmanica* are rare species and are restricted to limestone mountains.



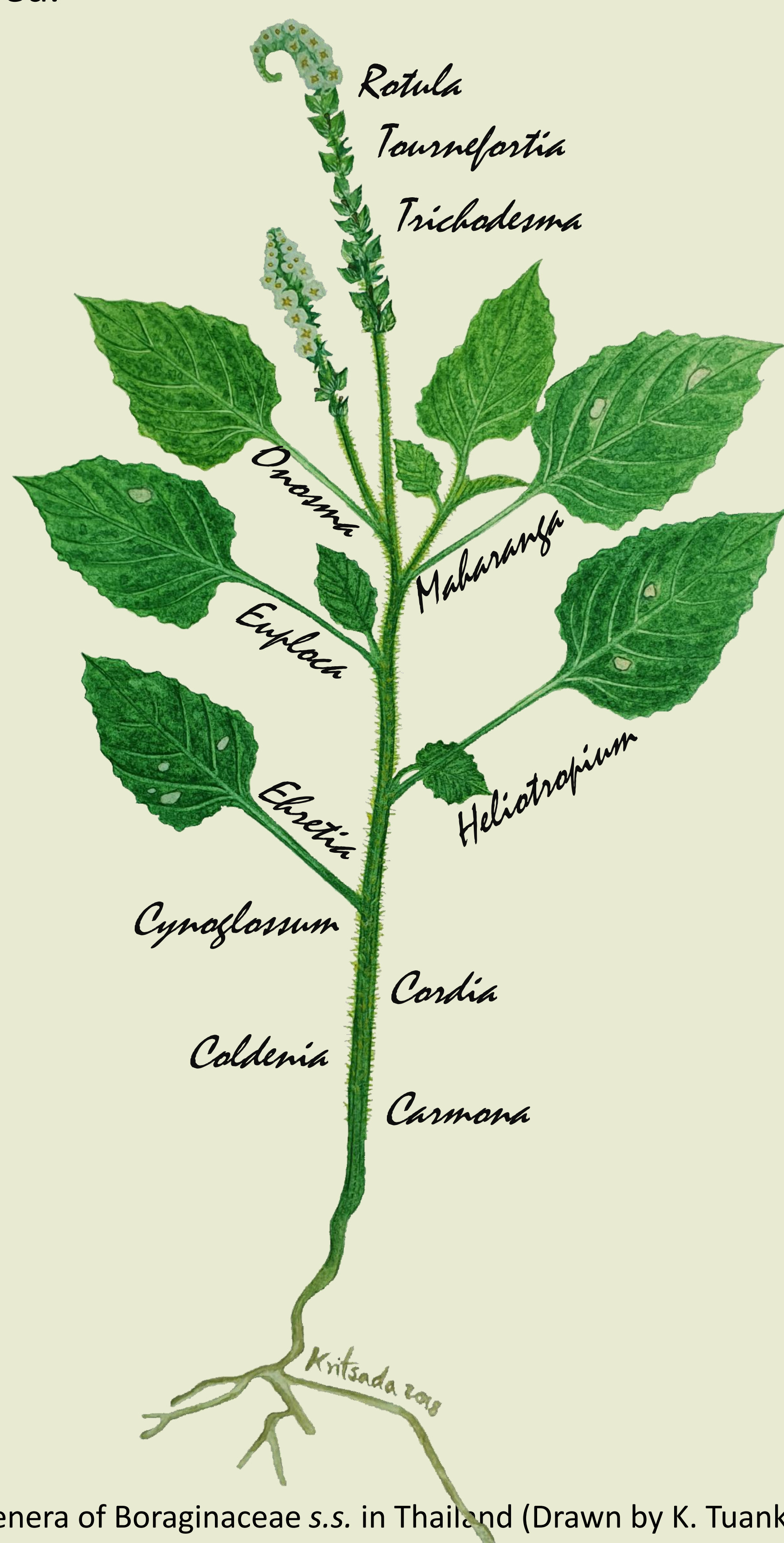
Herbaceous genera: (A) *Euploca ovalifolia* (B) *Maharanga lycopsioides* (C) *Onosma burmanica*.



Shrub genera: (A) *Ehretia winitii* (B) *Trichodesma calycosum* (C) *Tournefortia montana*.



Tree genera: (A) *Cordia myxa* (B) *Ehretia silvana* (C) *E. laevis* (D) *E. acuminata* (Photo by P. Phonsena) (E) *Heliotropium arboreum*.



Twelve genera of Boraginaceae s.s. in Thailand (Drawn by K. Tuanku).

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