

Rotala rotundifolia

A positive identification of *Rotala rotundifolia* using dichotomous key to the species of *Rotala* in India. It is a system for identifying plants based on a series of choices between two alternative descriptions, if they are "true" or "false".

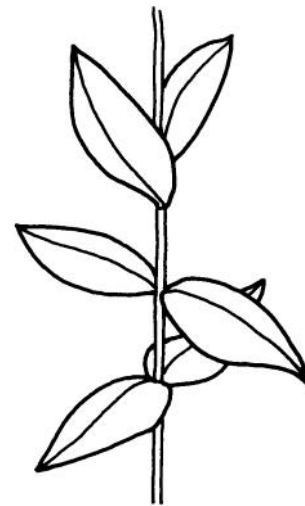
In the aquarium plant trade the plants were sold under various names, such as *Rotala macrandra*, *Rotala indica* and *Rotala rotundifolia*. The flowering plants of *Rotala* sp. were obtained from a wholesale distributor and aquatic plant nursery in New Plymouth, New Zealand.

Key to the species of *Rotala* in India (Relevant parts)

- 1a. Lower leaves alternate; upper bracts scale-like *R. floribunda*
- 1b. Lower and upper leaves decussate or whorled; bracts not scale-like.....2 (true)
- 2a. Leaves in whorls of 3 or more 3
- 2b. Leaves decussate (rarely in whorls of 3 at the stem apex) 8 (true)



Actual plant



Decussate leaves



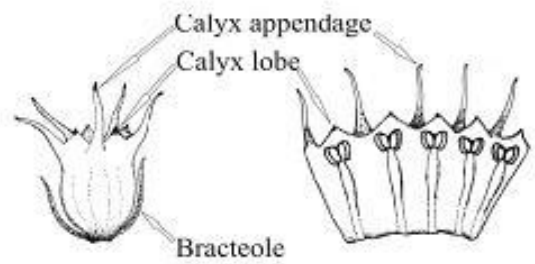
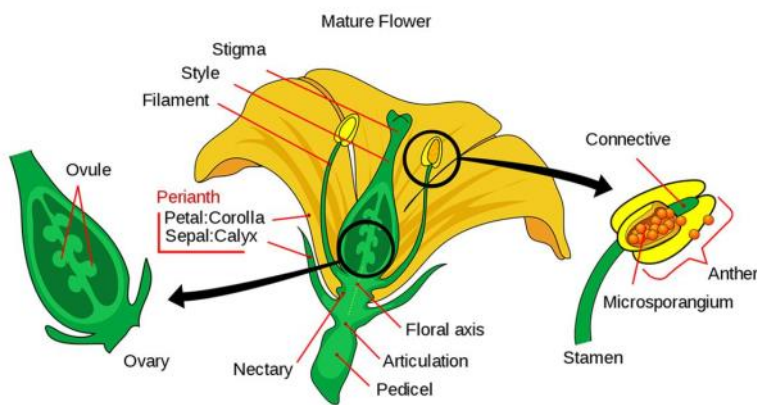
- 8a. Petals pinnately divided into linear segments R. fimbriata
- 8b. Petals entire or lobed, not pinnately divided into linear segments or absent 9 (true)
- 9a. Calyx appendages present between the calyx lobes 10
- 9b. Calyx appendages absent between the calyx lobes 17 (true)



Actual plant - Entire petals



Actual plant - Calyx



- 17a. Capsule opening by 4 valves 18 (true)
 17b. Capsule opening by 2 or 3 valves 20



Actual plant - Capsule



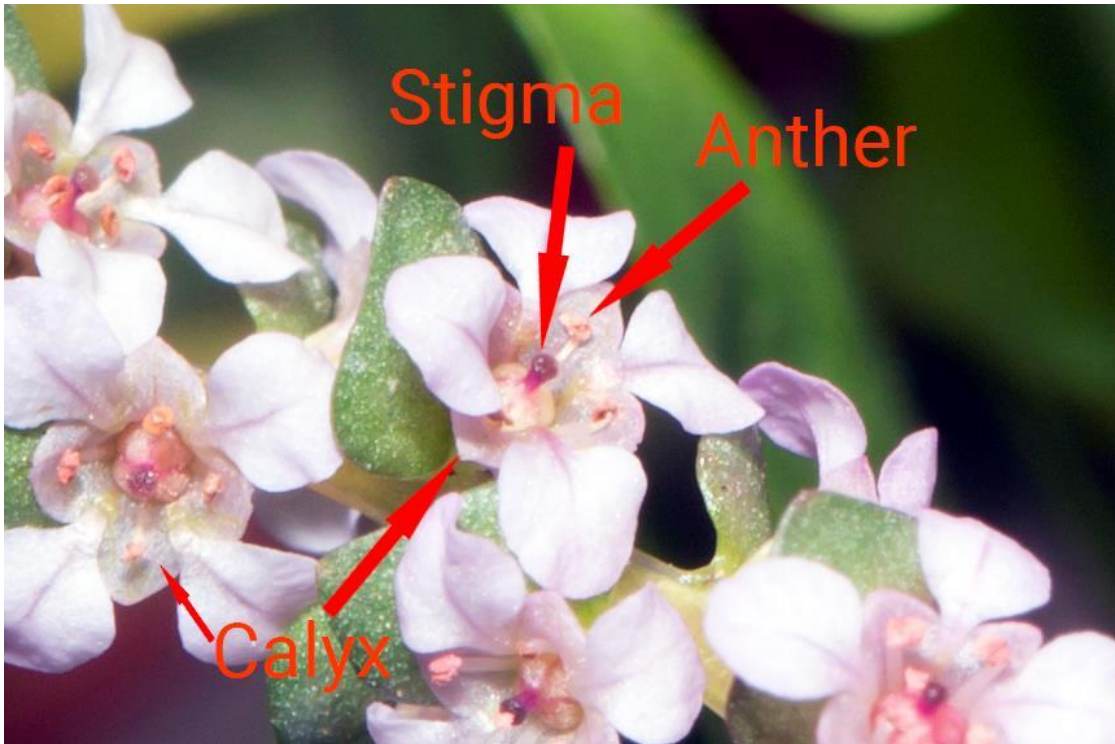
Lax inflorescence

- 18a. Floral bracts like foliage leaves; calyx tube distinctly 4-winged *R. tulunadensis*
 18b. Floral bracts distinctly different from the foliage leaves in shape and size;
 calyx tube not winged 19 (true)
 19a. Anthers and stigmas included within the calyx; bracts longer than wide; bracteoles
 about equal to the calyx tube in length; inflorescence in fruit lax; *R. rotundifolia* (true)
 19b. Anthers and stigmas exerted beyond the calyx; bracts wider than long; bracteoles
 half or less as long as the calyx tube; inflorescence in fruit dense *R. macrandra*





Actual plant



Actual plant



Key to the species of *Rotala* in India

- 1a. Lower leaves alternate; upper bracts scale-like *R. floribunda*
- 1b. Lower and upper leaves decussate or whorled; bracts not scale-like 2
- 2a. Leaves in whorls of 3 or more 3
- 2b. Leaves decussate (rarely in whorls of 3 at the stem apex) 8
- 3a. Petals absent 4
- 3b. Petals present 5
- 4a. Bracteoles leaf-like, partly or completely enclosing the flower, at least 2 times as long as the calyx *R. occultiflora*
- 4b. Bracteoles scarious, linear, not enclosing the flower and rarely exceeding the calyx *R. mexicana*
- 5a. Calyx tube at anthesis cylindrical to sub-urceolate, somewhat constricted at the throat; capsules opening by 3 valves; calyx lobes 3 or 5; petals 3 or 5 *R. verticillaris*
- 5b. Calyx tube at anthesis campanulate, not constricted at the throat; capsules opening by 2 or 4 valves; calyx lobes usually 4; petals usually 4 6
- 6a. Leaves monomorphic *R. vasudevanii*
- 6b. Leaves dimorphic 7
- 7a. Leaf number equal in the submerged and emergent whorls; petals shorter than the calyx; nectar scales unlobed *R. cookii*
- 7b. Leaf number unequal in the submerged and emergent whorls; petals longer than the calyx; nectar scales lobed *R. wallichii*
- 8a. Petals pinnately divided into linear segments *R. fimbriata*
- 8b. Petals entire or lobed, not pinnately divided into linear segments or absent 9
- 9a. Calyx appendages present between the calyx lobes 10
- 9b. Calyx appendages absent between the calyx lobes 17
- 10a. Calyx lobes 3 *R. malampuzhensis*
- 10b. Calyx lobes 4 or 5 11
- 11a. Calyx lobes 4 12
- 11b. Calyx lobes 5 14
- 12a. Stamens inserted near the base of the calyx tube; calyx tube globose to sub globose in fruit; bracts cuneate at base *R. andamanensis*
- 12b. Stamens inserted about halfway up the calyx tube; calyx tube campanulate to somewhat urceolate in fruit; bracts truncate or cordate at base 13



- 13a. Calyx lobes acutely triangular, apiculate at apex; bracteoles equal to or longer than the calyx tube;
leaves uniform in shape, with acute apex R. illecebroides
- 13b. Calyx lobes very shallowly triangular, obtuse at apex; bracteoles less than half as long
as the calyx tube; leaves variable in shape, with obtuse apex R. ritchiei
- 14a. Bracteoles 2 to 3 times longer than the total calyx, with a midrib R. densiflora
- 14b. Bracteoles equal to or shorter than the total calyx, without a midrib 15
- 15a. Stem distinctly winged; calyx appendages 2–3 times the size of calyx lobes; petals
absent..... R. meenkulamensis
- 15b. Stem not winged; calyx appendages equal to or shorter than the calyx lobes; petals present 16
- 16a. Stamens 0.5–0.7 mm long, included, inserted at the middle of calyx tube R. rosea
- 16b. Stamens 3.5–4.5 mm long, exerted, inserted at the base of calyx R. belgaumensis
- 17a. Capsule opening by 4 valves 18
- 17b. Capsule opening by 2 or 3 valves 20
- 18a. Floral bracts like foliage leaves; calyx tube distinctly 4-winged R. tulunadensis
- 18b. Floral bracts distinctly different from the foliage leaves in shape and size; calyx tube not winged19
- 19a. Anthers and stigmas included within the calyx; bracts longer than wide; bracteoles about equal to the
calyx tube in length; inflorescence in fruit lax; R. rotundifolia
- 19b. Anthers and stigmas exerted beyond the calyx; bracts wider than long; bracteoles half or less .
as long as the calyx tube; inflorescence in fruit dense R. macrandra
- 20a. Capsule opening by 3 valves 21
- 20b. Capsule opening by 2 valves 30
- 21a. Bracteoles leaf-like, partly or completely enclosing the flower, at least 2 times as long
as the calyx R. occultiflora
- 21b. Bracteoles scarious, linear, not enclosing the flower, not more than 2 times as long as the calyx 22
- 22a. Calyx lobes 5 23
- 22b. Calyx lobes 4 or 3 27
- 23a. Calyx tube 0.5–0.75 mm long; petals absent 24
- 23b. Calyx tube at least 1 mm long; petals present 25
- 24a. Amphibious tuft-forming herb; stem erect; leaves dimorphic R. mexicana
- 24b. Terrestrial mat-forming herb; stem prostrate; leaves monomorphic R. pygmaea
- 25a. Capsules exceeding the calyx lobes; style less than 0.5 mm long; bracteoles about as long as the calyx
tube 26
- 25b. Capsules not exceeding the calyx lobes; style 0.75–1 mm long;
bracteoles longer than the total calyx R. densiflora



- 26a. Leaves linear, apex bimucronate; calyx with distinct interjected folds; petals distinctly clawed; nectar scales prominent R. malabarica
- 26b. Leaves linear-lanceolate, apex obtuse or acute; calyx without interjected folds; nectar scales absent R. rosea
- 27a. Calyx lobes 4 28
- 27b. Calyx lobes 3 29
- 28a. Calyx tube 0.5–0.75 mm long R. mexicana
- 28b. Calyx tube more than 0.75 mm long R. cordata
- 29a. Capsule not exceeding the calyx lobes; petals absent R. mexicana
- 29b. Capsule exceeding the calyx lobes; petals present R. malampuzhensis
- 30a. Leaves with a distinct cartilaginous margin 31
- 30b. Leaves without a cartilaginous margin R. serpyllifolia
- 31a. Flowers distinctly pedicellate; anthers borne above the petals R. subrotunda
- 31b. Flowers sessile or subsessile; anthers included within the calyx R. indica

