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### ***Heterothalamus wagenitzii* (Compositae, Astereae), a new species from Brazil**

The genus *Heterothalamus* LESS. comprises three or four species distributed in South America. Three species, *Heterothalamus alienus* (SPR.) O. KUNTZE, *H. psiadioides* LESS. (BARROSO 1976) and an hitherto unknown third taxon described here, are endemic to Southeast Brazil, Uruguay and parts of Argentina. The fourth species, *Heterothalamus boliviensis* WEDDELL, is a common plant of high elevations in the central Andes. Its systematic position within subtribe *Baccharidinae* O. HOFFM. is still uncertain (HELLWIG 1996), though it is certainly related to the other three species of *Heterothalamus*.

*Heterothalamus* is associated to *Baccharis* L. differing from this genus by the presence of sterile or female marginal florets in the male capitula of the two species, which were described first, while the female plants have always purely female capitula (LESSING 1831). Since this polygamic-dioecious condition was treated as character generalis, the dioecious species *Heterothalamus boliviensis*, as well as some other taxa originally described for *Heterothalamus*, has been transferred to *Baccharis*, where all dioecious taxa of New World *Astereae* have been placed.

Besides the sexual differentiation there are further differential characters which allow for the distinction of the two dioecious species from those of *Baccharis* and allied genera:

- the uniseriate pappus with few bristles, caducous in most species of *Heterothalamus*,
- the presence of hardened receptacular bracts in the female capitula,
- the short but regularly ligulate shape of the female or neuter flowers, and the short, bifid style which is always overtopped by the corolla.

The new species, though strictly dioecious, shows all characters of the genus *Heterothalamus*. In the past it seems to have been confounded with *H. alienus*, which it resembles superficially.

***Heterothalamus wagenitzii* F.H. HELLWIG, sp. nov.**

Type: "RGS, Taimbesinho p. S. Fr. de Paula; In rupestribus dumetosis, 13.11.1953, fl., leg. et det. B. Rambo SJ ; Herbarium Anchieta, Florae Brasiliae australis, B. Rambo S.J. Colégio Anchieta, Porto Alegre 54522." (holotype at B, female plant).

**Descriptio:**

Frutex dioicus, ramificatione sympodiali, ramibus iuvenilibus dense foliosis, postremo cicatricosis, cortice griseo. Folia 3-6 mm longa, < 0,5 mm lata, subulata, nidis pilorum uni- et biserialium conspersis, apice mucronulato recurvato. Capitula minuta, in apicibus ramorum in racemis brevibus disposita, sessilia vel breve pedicellata. Involucra phylla imbricata, ca. 3-seriata.

Receptaculum plantarum feminarum bracteatum, bracteis induratis naviculiformibus. Corolla florum feminarum lingulata, apice trilobulata, lobulis glabris. Pappus caducus, uniserialis, setis barbellatis, geniculatis in parte inferiore, brevioribus quam corollam. Achaenium subterete, 5-7-costatum, cellulae epidermales papillis centralibus instructis.

Receptaculum capitulorum masculinorum nudum. Corolla florum quinquelobata; apex styli bifidus, rami styli lanceolati. Pappus uniserialis, setis barbellatis versus apicem curvatis et dilatatis, fere longitudine corollae.

**Description:**

Small dioecious shrubs with ericoid leaves (Figs. 1a, 2a), older branches rough from scars of fallen leaves. Capitula in short racemes at the end of the branches, sessile or shortly pedunculate, with several series of imbricate elliptical to ovate involucral bracts. Capitula of the female plants 2.0-2.5 mm high, 1.5-2.0 mm in diameter (Fig. 2b), cup-shaped, with 25-35 bracts, of which only 5-8 are sterile, with keeled receptacular bracts each one embracing a single floret, with 20-30 florets. Capitula of the male plant 1.5-2.0 mm high, 1.0-1.5 mm in diameter (Fig. 2c), cup-shaped to slightly campanulate, with 12-15 involucral bracts, no receptacular bracts (rarely one or two rudimentary ones visible), with 15-25 florets.

Florets of the female plants with a shortly ligulate corolla, no anthers and a style with two short lanceolate branches. Pappus consisting of one series of rough, straw-coloured caducous bristles, which are keeled near their base (Fig. 2d). Achenes subterete, with 5-7 longitudinal ribs (Fig. 2f), epidermal cells with central papillae. Male florets pentamerous, limb five-lobed, lobes without trichomes, style without stigma, with two lanceolate branches. Pappus bristles in one series, barbellate, broader near the apex (Fig. 2e).

This new species is named in honour of Prof. Dr. GERHARD WAGENITZ, on the occasion of his 75<sup>th</sup> birthday.

**Specimina visa:**

[Brazil], Rio Grande do Sul, Taimbesinho p. S. Fr. de Paula; In rupestribus dumetosis, 13.11.1953, fl., Rambo 54522 (B, female plant). - RGS, Taimbesinho p.S.Fr. de Paula. In rupestribus dumetosis, 30.1.1950, fl., Rambo 45536 (B, male plant). - Taimbé. S. Francisco d. Paula. Herba inter rupes ad rivum, 19.12.1950, 1000 m, Sehnem 5138 (B, female plant). - Plantas de S. Catarina – Brasil, Campo dos Padres, Bom Retivo, rupestre, do campo, 20.12.1948, 1900 m, Reitz 2632 (M, male plant). - Plantas de S. catarina – Brasil, Campo dos Padres, Bom Retivo, Campo, 19.12.1948, 1900 m, Reitz 2386 (M, male plant).

### Distribution and habitat

*Heterothalamus wagenitzii* is known from one locality in the northeast of Prov. Rio Grande do Sul, Brazil (Fig. 1b), where it occurs sympatrically with *H. alienus* and *H. psiadioides*, which have wider ranges of distribution. From the labels of the herbarium sheets it seems that the plants grow on rocky ground in bushy vegetation near the riverside at an altitude of about 1000 m. *H. wagenitzii* was also collected in Prov. Sta. Catarina not far from Blumenau where it grew at 1900 m a.s.l. They flower between November and January.

### Systematic affinities

The new species resembles *H. alienus* in habit, but differs very clearly in a number of characters.

The cross section of the needle-like leaves shows the median main bundle in *H. wagenitzii* flanked by one or two lateral oil ducts. In contrast, the canaliculate leaves of *H. alienus* have three parallel veins, the median bundle accompanied by a single oil duct.

The most striking differences between the two species concern size of capitula, number of flowers and sex distribution. *Heterothalamus wagenitzii* is strictly dioecious. In the functionally male plants there are a number of sterile marginal female florets. The capitula of the female plants of the new taxon contain about 20-30 florets, while in *H. alienus* there are generally found more than 300 florets. The diameter of the female capitula is 2-2.5 mm in *H. wagenitzii* versus 7-9 mm in *H. alienus* and the diameter of the male capitula is 1.5-2 mm versus 5-7 mm.

Although both, *Heterothalamus wagenitzii* and *H. boliviensis*, are dioecious, no close relationship between the two species can be demonstrated by a careful character analysis. Instead, *H. wagenitzii* seems to be closer to *H. alienus* or *H. psiadioides*. A revision of the whole genus which will contribute to clarify the phylogenetic relationships of the species of *Heterothalamus* is forthcoming.

### Abstract

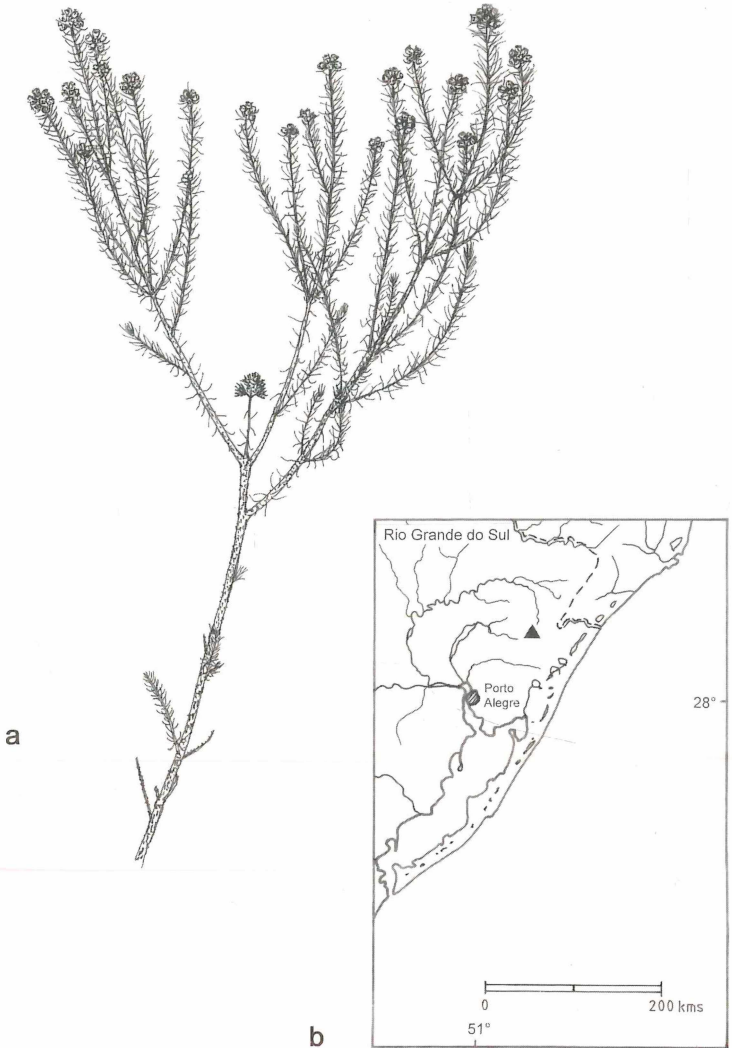
A new species, *Heterothalamus wagenitzii* F.H. HELLWIG, is described from Southeast Brazil. The generic placement of the dioecious species is very clear, although it does not show close affinity to any of the other species in the genus.

### References

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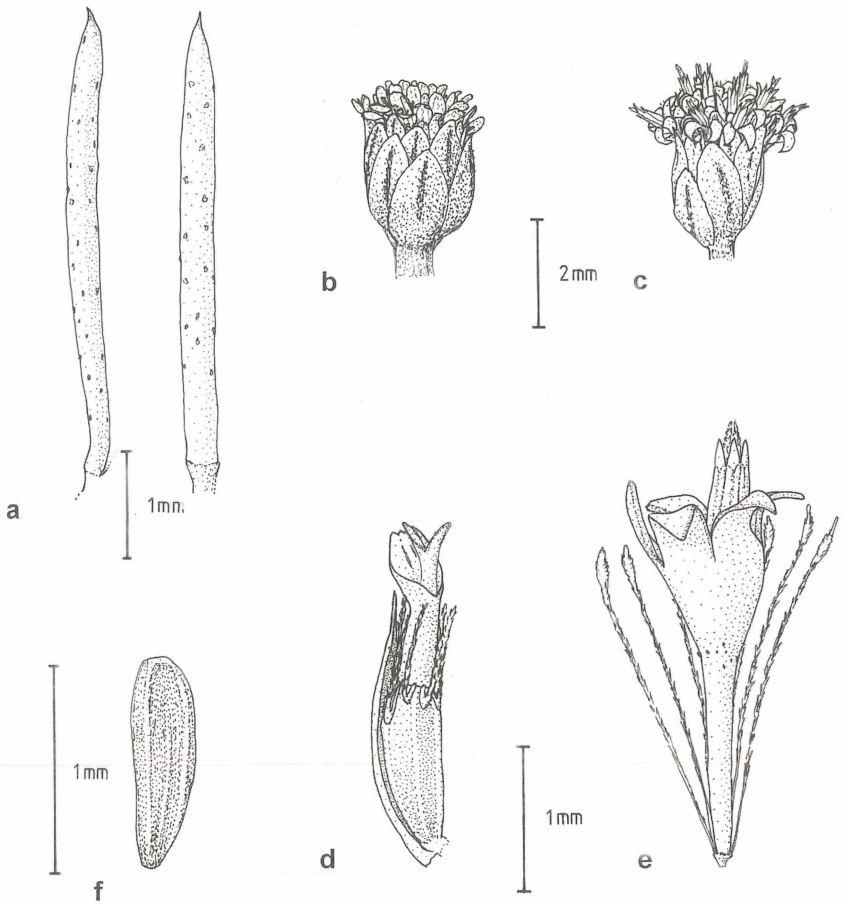
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Fig. 1



*Heterothalamus baccharoides*: a) habit; b) type locality in Brazil

Fig. 2



2. a) leaves; b) female capitulum; c) male capitulum; d) female flower with longitudinally cut receptacular bract; e) male flower; f) achene

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