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Nomenclatural notes on *Behuria* (Melastomataceae — Merianieae)[1]

Notas nomenclaturais em Beruria *(Melastomataceae — Merianieae)*

José Fernando A. Baumgratz[2] *& Rafael dos Anjos M. Tavares*[3]

Abstract

This study adds new synonyms, combinations, and lectotypifications for the genus *Behuria*. Three synonyms are proposed, *Benevidesia* (= *Behuria*), *Behuria corymbosa var. grandifolia* (= *Behuria corymbosa*) and *Behuria souzalimae* var. *pallescens* (= *Behuria souzalimae*), two new combinations, *Behuria organensis* (= *Benevidesia organensis*) and *Behuria magdalenensis* (= *Benevidesia magdalenensis*), and ten lectotypifications as follows: *B. cordifolia*, *B. corymbosa*, *B. corymbosa var. grandifolia*, *B. glazioviana*, *B. glutinosa*, *B. insignis*, *B. magdalenensis*, *B. mouraei*, *B. organensis*, and *B. parvifolia*.

Key words: *Benevidesia*, Brazil, lectotype, synonymy, typification.

Resumo

Esse estudo apresenta novas notas nomenclaturais para o gênero *Behuria*. São propostos três novos sinônimos – *Benevidesia* (= *Behuria*), *Behuria corymbosa var. grandifolia* (= *Behuria corymbosa*) e *Behuria souzalimae* var. *pallescens* (= *Behuria souzalimae*), duas novas combinações – *Behuria organensis* (= *Benevidesia organensis*) e *Behuria magdalenensis* (= *Benevidesia magdalenensis*), e 10 lectotipificações referentes a *B. cordifolia*, *B. corymbosa*, *B. corymbosa var. grandifolia*, *B. glazioviana*, *B. glutinosa*, *B. insignis*, *B. magdalenensis*, *B. mouraei*, *B. organensis* e *B. parvifolia*.

Palavras-chave: *Benevidesia*, Brasil, lectótipo, sinonímia, tipificação.

Introduction

Behuria Cham. is a genus endemic to Brazil. It comprises 14 species, most of them from the Southeastern region and some species endemic to high mountain areas of the Atlantic rain forest (Tavares 2005). This genus is characterized by the scattered glandular indumentum, decussate leaves, sometimes verticillate, terminal inflorescences, (5-)6-merous flowers, persistent calyx with unilobate laciniae, stamens with linear-subulate dorsal appendage, (3-)4-locular ovary, which is either glabrous or pilose and prolonged or not at the apex, capsular fruits, and obtriangular seeds, laterally flattened, with thin wings.

Recent studies have identified some deficiencies in the taxonomy and nomenclature of *Behuria*, pointing out a great affinity between it and *Benevidesia*. However, this genus lacks any diagnostic characteristics by which it can be distinguished from *Behuria* (Tavares 2005; Tavares *et al.* 2008). Based on these studies, types specimens and recent collections, three new synonyms, two combinations and ten lectotypes are proposed for *Behuria*. The lectotypifications were necessary because the holotypes were destroyed and there are isotypes, or the species was described based on syntypes.

Materials and Methods

This study is based on literature, plant material, and photos and/or images from the following herbaria: BR, C, F, IAC, K, NY, P, R, RB, and US (acronyms are presented according to Holmgren *et al.* 1990). Lectotype designations are made according to ICBN rules (McNeill *et al.* 2005).

[1]Part of Master's Degree of the second autor, Museu Nacional UFRJ.

[2]Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, R. Pacheco Leão 915, 22.460-030, Rio de Janeiro, RJ, Brazil. jbaumgra@jbrj.gov.br
[3]Museu Nacional/UFRJ, Curso de Pós-graduação, Botânica, 20940-040, Rio de Janeiro, RJ, Brazil.

Results and Discussion

Behuria Cham., Linnaea 9: 376. 1834. *Benevidesia* Saldanha & Cogn. *in* Mart., Eichler & Urban, Fl. bras. 14(4): 604, tab. 129, fig. 2. 1888, s*yn. nov.* Type species: *Behuria insignis* Cham.

Saldanha and Cogniaux (Cogniaux 1888) proposed the genus *Benevidesia*, describing *B. organensis*. It was included in the tribe Merianieae, close to *Behuria*, and characterized by the 6-meris flowers, with truncate or obscurely lobed lacinias of the calyx, stamens with connective dorsal filiform appendage, 4-locular glabrous ovary, capsular fruits, and pyramidal seeds. Later, Cogniaux (1891) integrated *Benevidesia* in the key to identify the genera of this tribe, and close to *Behuria* by the stamens with dorsal filiform appendage and pyramidal, not winged, seeds. The author distinguished *Benevidesia* by the subtruncate calyx and glabrous ovary. However, Tavares (2005) noticed that the calyx of *Behuria organensis* is not subtruncate, as it has thick lacinias, oblong and rounded at the apex.

Brade (1935) described another species of *Benevidesia*, *B. magdalenensis*, noting that the ovary, either mucronate or crowned with arrows, would be the main character to distinguish this genus from *Behuria*. Consequently, this author further observed that it would be necessary to revise the circumscription of this genus since the truncate calyx and glabrous ovary could not stand as its diagnostic characters. Furthermore, in *B. magdalenensis*, the lacinias of the calyx are thick, triangular, dorsally gibbous and acute at the apex, and the ovary is toothed and hirsute-glandular at the apex (Brade 1935; Tavares 2005). The calyx lacinias of *Behuria* can be developed and foliaceous (*B. insignis* and *B. souzalimae*), thick (*B. comosa*, *B. cordifolia*, *B. corymbosa*, *B. edmundoi*, *B. glazioviana*, *B. glutinosa*, *B. limae*, *B. magdalenensis*, B. *mouraei*, and *B. parvifolia*), or small in size (*B. huberioides* and *B. organensis*), with glabrous or pilose ovary, either prolonged or truncate at the apex (Tavares 2005; Tavares *et al.* 2008).

The morphology of the fruits and seeds of these two genera is also very similar. Whiffin and Tomb (1972) describe the seeds of *Behuria* as narrow, obliquely pyramidal, smooth, and winged. Baumgratz (1985) characterizes the fruits of both genera as capsular and the seeds as obpyramidal and winged. Baumgratz *et al.* (2004) comment on the fragility of these morphological circumscriptions as a basis of distinguishing *Behuria* from *Benevidesia*, as well as suggest that these genera may be synonyms after taxonomic revision.

Based on the studies of Brade (1935), Whiffin and Tomb (1972), Baumgratz (1985), Baumgratz *et al.* (2004), Tavares (2005) and Tavares *et al.* (2008), these two genera display similar diagnostic characteristics, including the floral merism, the shape of the calyx laciniae, type of indumentum, shape of apex and number of ovary locules, type of fruit and shape and presence of wings in the seeds. Therefore, it is proposed here that *Benevidesia* is a synonym of *Behuria* and that, consequently, two new combinations are also established: *Behuria organensis* and *Behuria magdalenensis*. In addition, *Behuria insignis* is recognized here as species type of the genus.

Behuria cordifolia Cogn. *in* Mart., Eichler & Urban, Fl. bras. 14(4): 13, tab. 3, fig. 2. 1886. Type: BRAZIL. RIO DE JANEIRO: Parque Nacional da Tijuca, Pedra de José Sineiro, *A.F.M. Glaziou 6884* (lectotype designated here C!; isolectotypes BR!, RB!).

Cogniaux (1886) based the description of *Behuria cordifolia* on *Glaziou 6884*. The specimens of herbaria C and RB are sterile; the RB specimen has only a single leaf and the specimen at BR has only an author's handwritten description. The fertile material originally used to describe the species was not found (Tavares 2005). The collection at herbarium C is designated here as the lectotype, as the vegetative parts agree with the protologue description, and it is in good condition of preservation. Glaziou (1908) mentioned that herbarium R received this same collection, but no specimen has so far been located, not even by Martins (1997), who studied the Melastomataceae types from this herbarium.

Behuria corymbosa Cogn. *in* Mart., Eichler & Urban, Fl. bras.14(4): 13, tab. 3, fig. 1. 1886. Type: BRAZIL. RIO DE JANEIRO: Teresópolis, Serra dos Órgãos, Pedra do Sino, IV.1870, fl. e fr., *A.F.M. Glaziou 3970* (lectotype designated here, P!, photo RB!; isolectotypes C!, F!, R!).

Behuria corymbosa var. *grandifolia* Cogn. *in* A. de Candolle & C. de Candolle, Monogr. phan. 7: 415. 1891. Type: BRAZIL. RIO DE JANEIRO: Petrópolis, Serra dos Órgãos, III.1889, fr., *A.F.M. Glaziou 17563* (lectotype designated here, R!; photos of B in F!, NY!), s*yn. nov.*

Cogniaux (1886) described *Behuria corymbosa* based on the *Glaziou 3970* and *Saldanha 6870*. The specimen *Glaziou 3970* (P) is designated here as a lectotype of *B. corymbosa*,

in agreement with the original description, and because it is in good condition of preservation. Martins (1997) recognized the duplicates of these two collections in R as isosyntypes.

Cogniaux (1891) distinguished *Behuria corymbosa* var. g*randifolia* based on the hirsute indumentum, with long trichomes on the branches, petioles, abaxial surface of the leaves, peduncle, and calyx, in addition to the apparently longer petioles (3–4,5 cm) and leaf blades (8–12 × 5–8 cm). However, these measurements overlap the values of the typical variety, and the indumentum is identical in both taxa. In describing *B. corymbosa*, Cogniaux (1886) did not note that there were only foliar bracts, and he considered these structures as leaves. In fact, the leaves are larger than the bracts, as pointed out by Tavares (2005). In proposing this variety, the author only had samples with leaves and fruits, not bracts (Cogniaux 1891; Tavares 2005). Since these characteristics do not have diagnostic value to distinguish infraspecific taxa, *B. corymbosa* var. *grandifolia* is proposed here as a synonym of *B. corymbosa*. As the herbarium B has no specimens of this genus, which were probably destroyed during World War II, the collection from R is designated here as the lectotype of the variety *grandifolia*.

Behuria glazioviana Cogn. *in* A. de Candolle & C. de Candolle, Mon. phan. 7: 415. 1891. Type: BRAZIL. RIO DE JANEIRO: Nova Friburgo, Alto Macaé, 18.II.1889, fl. e fr., *A.F.M. Glaziou 17563a* (lectotype designated here, P!, photo RB!; isolectotypes C!, K!, R!, RB!, photos of B in F!, NY!).

Cogniaux (1891) neither mentioned where the specimen type was housed nor where it was collected in Rio de Janeiro State. Specimens of the type collection are in herbaria C, K, P, R and RB; F and NY have photos of the specimen at herbarium B. Since P holds the principal collections of Glaziou that were studied by Cogniaux and since the specimen of *Behuria glazioviana* is in good condition of preservation and consistent with the protologue description, the specimen at P is designated here as a lectotype. Herbarium B has no specimens of *Behuria*, probably having been destroyed during World War II.

Behuria glutinosa Cogn. *in* Mart., Eichler & Urban, Fl. bras. 14(4): 14-15. 1886. Type: BRAZIL. MINAS GERAIS: Ouro Preto, Serra do Itacolomi, 14.II.1884, fl., *A.F.M. Glaziou 14794* (lectotype designated here, R!; isolectotypes C!, P!, photo of P in RB!).

Cogniaux (1886) described *Behuria glutinosa* based on three syntypes: *Riedel 2704*, *Lund s.n.* and *Glaziou 14794*. The collection *Glaziou 14794* (R) is indicated here as lectotype, as it agrees with the protologue description, and is in good condition of preservation. Cogniaux (1886) mentioned that the specimen was collected in Rio de Janeiro, although Glaziou (1908) noted that it is from Ouro Preto, Minas Gerais. Martins (1997) also pointed out this conflict and mentioned that the latter locality is consistent with data described on the label of the R specimen.

Additional material examined: BRASIL. MINAS GERAIS: Ouro Preto, Alto do Itacolomi, II.1835, fl., *Riedel 2704* (K, P, photos of B in F, NY, RB, W); fl., *Lund s.n.* (C).

Behuria insignis Cham., Linnaea 9: 377. 1834. Type: BRAZIL. *ex* Herb. Reg. Berolinense, fl., *Sellow s.n.* (lectotype designated here, K 000170031!).

Chamisso (1834) examined several collections of Sellow (*e Brasilia semel iterumque lectam misit Sellowius*) to describe this species without mentioning any collection number or herbarium. The specimen of *Behuria insignis* at herbarium K is indicated here as a lectotype, as it agrees with the protologue description, is a fertile material, and is in good condition of preservation. Herbaria F and NY have photos of Sellow's specimen from Herbarium B, but this herbarium has no specimens of *Behuria*.

Additional material examined: BRASIL. fr., *Sellow 1147* (F, K); fl. e fr., *Sellow s.n.* (photos of B in F, NY).

Behuria magdalenensis (Brade) Tavares & Baumgratz, *comb. nov. Benevidesia magdalenensis* Brade, Arq. Inst. Biol. Veg. 2(1): 16-17, est. 1, figs. 17-23. 1935. Type: BRAZIL. RIO DE JANEIRO: Santa Maria Magdalena, Alto da República, 1600 m, V.1932, fr., *Santos Lima & A.C. Brade 11729* (lectotype designated here, RB!).

Brade (1935) described *Benevidesia magdalenensis* based on two syntypes from the same collectors: *Lima et Brade 11729* (RB) and *13208* (RB). Both specimens were collected at the Parque Estadual do Desengano, although in different places. The specimen *Lima et Brade 11729* is designated here as lectotype, as it agrees with the protologue description and is in good condition of preservation.

Additional material examined: BRASIL. RIO DE JANEIRO: Santa Maria Madalena, Alto do Desengano, 5.III.1934, fr., *S. Lima et al. 13208* (RB).

Behuria mouraei Cogn. *in* A de Candolle & C. de Candolle, Mon. phan. 7: 414. 1891. Type: BRAZIL. RIO DE JANEIRO: Teresópolis, Serra dos Órgãos, II.1888, fl. e fr., *J.T. Moura s.n.* (lectotype designated here, RB 44381!).

Cogniaux (1891) described this species based on two syntypes: *Glaziou 16821a* and *Moura s.n.* The latter collection of RB herbarium is indicated as lectotype, as it is the only fertile material, agrees with the protologue description, and is in good condition of preservation. The specimen *Moura 130* (P; photos of B in F, NY, US) does not represent the specimen type, even though this is indicated on the labels. The herbarium B has no specimen of *Behuria.*

Additional material examined: BRASIL. RIO DE JANEIRO: 19.II.1886, *A.F.M. Glaziou 16821a* (P, R); fl. e fr., *J.T. Moura 130* (P, photos of B in F, NY, US).

Behuria organensis (Saldanha & Cogn.) Tavares & Baumgratz, *comb. nov. Benevidesia organensis* Saldanha & Cogn. *in* Mart., Eichler & Urban, Fl. bras. 14(4): 605, tab. 129, fig. 2. 1888. Type: BRAZIL. RIO DE JANEIRO: Petrópolis, Serra dos Órgãos, III.1887, fl. e fr., *A.F.M. Glaziou 16027* (lectotype designated here, RB!).

Saladanha and Cogniaux (Cogniaux 1888) described *Benevidesia organensis* based only on the *Glaziou 16027* collection that was housed in the *herbarium Berolinense* (today at herbarium B). Since this herbarium has no specimen of both genera and only RB isotype was found (Tavares 2005), it is here designated as lectotype. This specimen agrees with the protologue description, is a fertile material, and is in good condition of preservation.

Behuria parvifolia Cogn. *in* Mart., Eichler & Urban, Fl. bras. 14(4): 12-13, tab. 2, fig. 2. 1886. Type: BRAZIL. MINAS GERAIS: route de la Serra Negra, pres du rancho do Morro Cavado, 25.IX.1874, fl. e fr., *A.F.M. Glaziou 7625* (lectotype designated here, P!, photo RB!; isolectotypes C!, K!, P!, R!, RB!).

The description of *Behuria parvifolia* was based on the *Glaziou 7625* collection (Cogniaux 1886). The place of this collection remains controversial: it is referred to as Rio de Janeiro State (K and P), Minas Gerais State (K, P, R and RB), or no site at all is mentioned (C). Glaziou (1908) noticed that this collection was from Minas Gerais, but according to the protologue description (Cogniaux 1886), it was from Rio de Janeiro State. Martins (1997) points out the incomplete transcription of the data on the specimen at R, but the data agree with Glaziou (1908). The region of Serra Negra, in the Itatiaia massif, covers Rio de Janeiro and Minas Gerais States. The specimen at herbarium P is designated here as lectotype, as it was collected in Minas Gerais, has the most complete field notes on the label, is in good condition of preservation, and fits the morphological description.

Behuria souzalimae Brade, Rodriguésia 9(18): 3. 1945. Type: BRAZIL. SÃO PAULO: Estação Experimental Boracéia, 16.I.1941, fl., *A. Souza Lima s.n.* (holotype RB 44236!, photos F!, NY!, US!; isotypes RB 44235!, IAC 6117!).

Behuria souzalimae var. *pallescens* Brade, Rodriguésia 9(18): 3. 1945. Type: BRAZIL. SÃO PAULO: Estação Experimental Boracéia, 16.I.1941, fl., *A. Souza Lima s.n.* (holotype RB 44235!, photo F!; isotype IAC 6115!), *syn. nov.*

None of the characteristics (foliar blade ca. 8 × 2,6 cm; petiole ca. 2 cm long; green lacinias of the calyx) pointed out by Brade (1945) to identify the variety *pallescens* has diagnostic value (Tavares 2005). There is no description of the color of lacinias on the labels, and the quantitative characters overlap with the data presented in the protologue description of the typical variety. Therefore, *Behuria souzalimae* var. *pallescens* is proposed here as synonym of *B. souzalimae*.

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