



Flora of the *cangas* of Serra dos Carajás, Pará, Brazil: Orobanchaceae

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Abstract

This is a taxonomic study of the representatives of Orobanchaceae from the *cangas* of Serra dos Carajás, Pará state, Brazil. We recorded *Buchnera carajasensis* and *B. longifolia* in Serra dos Carajás, but only the former occurs in areas of *canga* and will be treated in this work. Here we present a detailed description, photographs and notes on morphology, distribution and phenology of this species.

Key words: Amazon, FLONA Carajás, hemiparasitism, Scrophulariaceae, taxonomy.

Resumo

Este é um estudo taxonômico dos representantes de Orobanchaceae das *cangas* da Serra dos Carajás, no estado do Pará, Brasil. Registramos *Buchnera carajasensis* e *B. longifolia* na Serra dos Carajás, mas apenas a primeira ocorre em áreas de *canga* e será tratada neste trabalho. Aqui apresentamos uma descrição detalhada, fotografias e comentários sobre morfologia, distribuição e fenologia desta espécie.

Palavras-chave: Amazônia, FLONA Carajás, hemiparasitismo, Scrophulariaceae, taxonomia.

Orobanchaceae

Orobanchaceae Vent. is the largest family among the parasitic angiosperms, comprising ca. 90 genera and over 2000 species of cosmopolitan distribution (Bennett & Mathews 2006). The family presents great morphological diversity, from non-chlorophyllous holoparasites to green photosynthetic hemiparasitic herbs, shrubs or vines (Fischer 2004; Tank *et al.* 2006). In Brazil, 12 genera and ca. 40 species of Orobanchaceae have been recognized (BFG 2015), but only the hemiparasitic genus *Buchnera* was recorded in the areas of *canga* of Serra dos Carajás.

1. *Buchnera* L.

Buchnera is a tropical genus of hemiparasitic plants that comprises between 100 and 140 species, occurring especially in the Old World (Philcox 1965; The Plant List 2013). In the New World, 14 species were recognized by Philcox (1965), nine of which occurring in Brazil (BFG 2015). The recent discovery of two additional species brought this number to 11 (Souza & Paula-Souza 2016; Scatigna *et al.* 2017). *Buchnera* is characterized as hemiparasitic herbs or sub-shrubs; with hipocrateriform corollas that are slightly

zigomorphic, blue, lilac or pink, with erect to slightly curved tubes; and monothealous anthers (Philcox 1965; Souza & Giulietti 2009). Brazilian species of *Buchnera* are usually found in open wet areas of the Cerrado domain and other formations associated with quartzite outcrops (*campos rupestres*) and ironstone outcrops (*cangas*) (Souza & Giulietti 2009; Scatigna *et al.* 2017). *Buchnera carajasensis* Scatigna & N.Mota and *B. longifolia* Kunth were recorded in Serra dos Carajás, but only the former occurs in areas of *canga*.

1.1. *Buchnera carajasensis* Scatigna & N.Mota, Kew Bull. 72(2):25. 2017. Fig. 1a-c

Annual herbs, ca. 15–50 cm tall. Stems simple or branched, glabrous. Basal leaves usually opposite, glabrous, sessile or subsessile, 1-nerved, oblanceolate to elliptical, margin entire, 2–5 × 2–3 mm; cauline leaves alternate to opposite, glabrous, sessile, 1-nerved, linear, margin entire, 0.5–4.5 × 0.05 cm. Inflorescences laxely racemose, secund. Flowers sessile, bi-bracteolate. Calyx externally glabrous, minutely ciliate, 10-nerved, tubular, 3–5 mm long. Corolla lilac, rarely white, tube externally sparsely glandular-pubescent on the upper half, internally pubescent, with glandular and non

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glandular hairs, 6–10 mm long; the lobes obovate to oblanceolate, apex emarginated to acuminate. Stamens 4, didynamous. Ovary ovoid, stigma clavate, inserted, usually persistent. Capsules loculicidal, subglobose ca. 4–4.5 × 2.5–3 mm. Seeds obovoid-angulate, ribbed.

Selected material: Canaã dos Carajás, S11A, 6°20'51" S, 50°26'57" W, 739 m, 29.IV.2015, fl. and fr., *N.F.O. Mota et al. 2970* (UEC, MG, RB); S11B, 6°20'36" S, 50°25'26" W, 747 m, 27.I.2012, fl. and fr., *L.V.C. Silva et al. 1129* (BHCB); S11C, 6°20'46" S, 50°24'54" W, 745 m, 23.III.2016, fl. and fr., *R.M. Harley et al. 57438* (MG); S11D, 6°23'30" S, 50°21'2" W, 820 m, 18.II.2010, fl. and fr., *M.O. Pivari et al. 1501* (BHCB, HCSJ); S16, 6°26'27" S, 50°17'37" W, 670 m, 25.V.2016, fl. and fr.,

B.F. Falcão et al. 585 (BHCB, MG); Serra da Bocaina, 6°18'54" S, 49°16'31" W, 722 m, 14.VI.2016, fl. and fr., *B.F. Falcão et al. 349* (BHCB, MG); Serra do Cristalino, 6°27'33" S, 49°40'47" W, 752 m, 24.V.2016, fl. and fr., *B.F. Falcão et al. 567* (BHCB, MG); Serra do Tarzan, 6°19'46" S, 50°7'47" W, 747 m, 9.II.2012, fl. and fr., *L.V.C. Silva et al. 1206* (BHCB). Parauapebas [Marabá], N2, 06°03'20" S, 50°15'18" W, 678 m, 14.VI.2015, fl. and fr., *N.F.O. Mota & A.V. Scatigna 3364* (holotype MG; isotypes INPA, K, NY, RB, UEC); N3, 13.III.1985, fl. and fr., *R.S. Secco et al. 422* (MBM, MG); N7, 6°9'28" S, 50°10'13" W, 699 m, 23.III.2012 fl. and fr., *A.J. Arruda et al. 806* (BHCB).

Additional material: BRASIL. PARÁ: São Félix do Xingu, Serra de Campos, Platô SF1, vegetação de canga,



Figure 1 – *Buchnera carajasensis* – a. flowering branches; b. inflorescence with flower in lateral view; c. fruit covered by calyx in lateral view.

6°32'34" S, 51°52'40" W, 660 m, 1.V.2016, fl., *P.L. Viana et al.* 6135 (MG); Serra da Seringa, 6°23'34" S, 51°52'42" W, 653 m, 29.VI.2016, fl. and fr., *B.F. Falcão et al.* 626 (BHCB, MG).

Buchnera carajasensis had been identified as the Mexican endemic *B. tenuissima* Philcox by Souza & Giuliatti (2009), but differs from it by the second inflorescence (*vs.* spiral-spiceiform) and by the 1-nerved basal leaves (*vs.* 3-nerved). It is also similar to *B. palustris*, but differs from it by the stems and leaves being entirely glabrous (*vs.* sparsely hispid-scabrous), by the calyx reaching up to half the length of the corolla tube (*vs.* longer than half of the corolla tube), and by the subglobose capsules (*vs.* cylindrical to ellipsoid), in addition to the second inflorescence (*vs.* spirally arranged). *Buchnera carajasensis* has been collected in Serra dos Carajás with flowers and fruits from January to June.

Buchnera carajasensis is endemic to de Serra dos Carajás. Serra Norte: N2, N3, N7; Serra Sul: S11A-D, S16, Serra da Bocaina, Serra do Tarzan; São Félix do Xingu: Platô SF1 - Serra de Campos, Serra da Seringa. Usually found in open grassy fields on iron rocky soils that are periodically flooded.

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List of exsiccates

Arruda AJ 806,1024 (1.1). Cardoso A 1968 (1.1). Carreira L 3421 (1.1). Falcão BF 226, 312, 349, 397, 398, 457, 470, 567, 585, 626 (1.1). Giorni VT 121, 136 (1.1). Harley RM 57371, 57438 (1.1). Hiura AL 53 (1.1). Mota NFO 2964, 2970 (1.1), 3364 (1.1, holotype). Pivari MO 1501 (1.1). Rocha KCL 85 (1.1). Secco RS 422 (1.1). Silva LVC 1129, 1134, 1138, 1206 (1.1). Silva MF 1336 (1.1). Vasconcelos LV 816, 860 (1.1). Viana PL 5625, 6135 (1.1).