Nomenclature correction in *Parquetina* (Apocynaceae: Periplocoideae)

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Abstract

Bullock (1961) combined *Periploca nigrescens* Afzel. and *Omphalogonus calophyllus* Baill. in *Parquetina nigrescens* (Afzel.) Bullock. Based on their conspicuously different floral morphology, Venter and Verhoeven (1996) reversed Bullock’s combination to *Periploca nigrescens* Afzel. and *O. calophyllus* Baill. However, DNA sequence analyses (Ionta and Judd, 2007) indicated that *Periploca nigrescens* and *O. calophyllus* are sister species in *Parquetina*. A nomenclatural correction of *Parquetina* and its two species, as well as a new generic protologue and species key have thus become necessary. The bitypic *Parquetina* is characterised by the following features: lianas that turn black when dry, relatively large and coriaceous leaves, fleshy coriaceous corolla with inside pink, maroon or deep crimson to black-violet, and pubescent or hirsute stamens with pollen in tetrads.

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1. Introduction

Bullock (1961) combined *Periploca nigrescens* Afzel. (1817) and *Omphalogonus calophyllus* Baill. (1890a) in a single species, *Parquetina nigrescens* (Baill.) Bullock because of their similar vegetative appearance and their unique feature of turning black when dry. The monotypic *Parquetina gabonica* Baill. (1889) is a synonym of *Periploca nigrescens* (Brown, 1902). Venter and Verhoeven (1996) interpreted the conspicuous differences in floral morphology to indicate two separate taxa (*O. calophyllus* with corolla campanulate, gynostegium included in the corolla tube, corona lobes projecting into the corolla tube cavity with apices subulate or rounded and hood-shaped, and anthers small, ±0.5 mm long, versus *Parquetina nigrescens* with corolla rotate, tube halfway recurvate, gynostegium exerted, corona lobes exposed above the corolla and cross-shaped with apical segments tortuous, and anthers large, 3–4 mm long). They thus reversed Bullock’s lumping and reinstated the original *Periploca nigrescens* and *O. calophyllus*.

However, DNA sequence analyses of the Periplocoideae showed that *Periploca nigrescens* forms a strongly supported clade with *O. calophyllus* (Ionta and Judd, 2007). Although closely related, the differences in floral structure support the separation of the two taxa on species level within a single genus, in this instance *Parquetina* which precedes *Omphalogonus*. *Periploca* precedes *Parquetina*, but the former genus falls in a totally different clade from *Parquetina* (Ionta and Judd, 2007). The aim of this paper is therefore to correct the nomenclature of *Parquetina* and its two species, to provide a new protologue for the genus and a key to the species.

2. Results

2.1. Generic nomenclatural corrections and protologue


*Omphalogonus* Baill., Bulletin Mensuel de la Société Linnéenne de Paris 2: 812 (1890a), 300 (1890b); K. Schum.: 221 (1895); N.E. Br.: 256 (1902). Type species: *O. calophyllus*.

Liana with copious latex, plant parts turning black when dried. Stems woody, twining. Leaves opposite, simple, glabrous, petiolate; blade glossy and green above, pale green beneath, broadly ovate to elliptic, coriaceous. Inflorescence cymose,
axillary, many flowered, glabrous. *Flowers* bisexual, actinomorphic, pentamorous, semi-epigynous. *Corolla* fleshy coriaceous; tube shallow or deep; lobes elliptic, broadly elliptic, ovate or broadly ovate, inside pink, maroon or deep crimson to black-violet. *Corona* lobes opposite sepals, variously shaped. *Stamens* directly below corona lobes and opposite sepals, pubescent or hirsute; pollen in decussate or rhomboidal tetrads. *Ovaries* 2, free, semi-inferior, hemispherical, styles fused, terete; style-head pentangular, apex obtuse; pollen translators spathulate, receptacle broadly ovate, neither grooved nor apically split, stipe terete, viscidium elliptic or triangular. *Follicles* paired, horizontal, linear ovoid to narrowly ellipsoidal. *Seed* narrowly elliptic to elliptic, brown to dark brown, warty, distal coma whitish.

Cut parts of the plants of both species of *Parquetina* turn black when dried. This is a unique feature of the genus and reminds one of the colour change that takes place in some parasitic members of the Scrophulariaceae when dried. Although many species in the Periplocoideae have coriaceous leaves, those of the *Parquetina* species are often thickly coriaceous and are relatively large with glossy green upper surface and pale green lower surface. The combination of fleshy coriaceous corolla with pink to black-violet insides, and the hooded corona lobes of *Parquetina calophylla* and the usually cross-shaped ones of *Parquetina nigrescens* are uncommon. The recurvate corolla tube of *Parquetina nigrescens* is an uncommon feature and resembles that found in *Baseomea* Schltr. & Rendle and *Batesanthus* N.E.Br. (Venter and Verhoeven, in press), but these genera are not related to *Parquetina* (Ionta and Judd, 2007).

2.2. Species key

Corolla tube campanulate; lobes above papillate. Corona lobes with outer apical segment subulate to rounded, inner hood-shaped. . . . . . . . *Parquetina calophylla*.

Corolla tube recurvate; lobes above velvety. Corona lobes linear to filiform, mostly cross-shaped with apical segments tortuouos. . . . . . *Parquetina nigrescens*.

2.2.1. *Parquetina calophylla* (Baill.) Venter, comb. nov.


*P. gabonica* Baill.: 806 (1889), 294 (1890b); K.Schum.: 218 (1895). Type: Gabon, locality unknown, *Duparquet* 1864, No. 1 (P!, holotype).

*Periploca afzelii* G.Don: 163 (1837). Type: Sierra Leone, collector unknown. (No type located). Synonymy after description of Don (1837).

*P. preussii* K.Schum.: 117 (1893), 216, fig. 64 (1895). Type: Cameroon, between Mokonye and Kumba Ninga, *Preuss* 151 (B†, holotype, no isotype located). Synonymy after description of Schumann (1893) and Schumann (1895).

*P. gabonica* (Baill.) A.Chev.: 251 (1951).

Diagnostic characters: Corolla rotate with gynostegium completely exposed; tube recurvate at middle; lobes reflexed, above velvety and deep crimson, deep violet or black-violet at base turning brown to dark brown towards apex. Corona lobes borne from corolla curve, 5–7 mm long, erect, filiform to linear and cross-shaped because of 2 lateral segments above middle, apical segments tortuouos.

(Protologue, distribution and ecology in Venter and Verhoeven (1996)).


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3. Discussion

Presently it is becoming more and more obvious that floral morphology does not necessarily indicate relationship between taxa in the Periplocoideae. In, for example, *Cryptolepis* R.Br. with approximately 30 species, the floral structure of the various species is rather homogenous, clearly indicating the relationship of species in the genus, in contrast to the situation in *Parquetina* where the flowers differ conspicuously. In *Ischnolepis* Jum. & H.Perrier and *Petopentia* Bullock the flowers, and even some vegetative parts, are very similar and the two genera were thus united under *Ischnolepis* (Venter and Verhoeven, 2001). However, molecular investigations indicated two separate genera (Meve and Liede, 2004; Ionta and Judd, 2007). Following earlier authors, such as Schumann (1895) and Brown (1902, 1904) who also revised the Periplocoideae, Venter and Verhoeven (1997, 2001) regarded depth of the corolla tube and the position of the corona lobes and stamens in the corolla as significant for generic affinities. Klackenberg (1999) criticized their assumption in his revision of the Madagascan Periplocoideae. Meve and Liede (2004) believed “floral characters are of limited taxonomic value in Periplocoideae” and that “A careful assessment of all available data, especially the vegetative characters, is necessary for an appropriate classification of Periplocoideae”. Considering these statements and the recent molecular analyses of various Periplocoideae taxa by Ionta and Judd (2007), in particular that
of ‘O. calophyllus’ and ‘Periploca nigrescens’, it is clear that a new approach to taxonomic relationships in the sub-family has become necessary. In any future classification of the Periplocoideae, phylogenetic relationships of taxa will have to be based on vegetative features, reproductive characters and molecular evidence.

References


