

Takashi SUGAWARA^{a,*} and Satoru TAKESHIGE^b: A New Form of *Boschniakia rossica* (*Orobanchaceae*) from the Southern Alps, Japan

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Summary: We described a new form of *Boschniakia rossica* (Cham. et Schtdl.) B. Fedtsch., *B. rossica* f. *flavocorollata* T. Sugaw. from the Southern Alps of Japan. The flowers of this form completely lack red brown coloration and their corolla and calyx are characterized by yellow coloration.

Boschniakia C. A. Mey. ex Bong. is a small genus composed of four species in the family *Orobanchaceae* (Mabberley 2017). The genus is commonly known as groundcones, because the plants look at first glance like pine-cones. They are perennial and holoparasitic, meaning that they depend entirely on a host plant for nutrients. The genus is distributed from north India to China, Korea, Japan, Russia and North America (Grey-Wilson and Cribb 2011, Mabberley 2017), and it is morphologically characterized by having a cupular calyx, the apex of which is irregularly or obtusely two- to five-lobed, four stamens exerted from corolla tube, and a unilocular ovary with parietal placentation (Zhang and Tzvelev 1998). However, it has been inferred from the recent molecular data that the genus is not monophyletic (Wolfe et al. 2005, Park et al. 2008).

Boschniakia rossica (Cham. et Schtdl.) B. Fedtsch. is distributed widely from China, Korea, Japan, Russia and North America (Zhang and Tzvelev 1998, Novopokrovskii 2000). In Japan it rarely occurs on subalpine to alpine zone and is usually parasitic to *Alnus maximowiczii* Callier (Yamazaki 1993, Fujii 2017). Morphologically,

B. rossica is somewhat similar to the two species of *B. hookeri* Walp. and *B. strobilacea* A. Gray, both distributed in North America. However, the latter two species are easily distinguished from the former by having a bilabiate corolla, the lower lip of which is well-developed and markedly tri-lobed (Clark 1998). Meanwhile in flowers of *B. rossica* and *B. himalaica* J. D. Hooker & Thomson, a species distributed from N. India to Nepal and western China (Grey-Wilson and Cribb 2011), the lower lip of corolla was shallowly tri-lobed in common, but they are distinguished from each other by the following characteristics: 1) the inflorescences of *B. rossica* are spicate, but those of *B. himalaica* are racemose, 2) the corollae of *B. rossica* are 1–1.2 cm long, but those of *B. himalaica* are 1.5–2.5 cm long (Zhang and Tzvelev 1998).

During a botanical expedition in 2018 to the Southern Alps, Japan, the second author, Takeshige, and his co-workers discovered a few unknown, strange groundcones of *Boschniakia* within a population of *B. rossica*. Next year, such a strange groundcone was found again but just one, at the same site (Fig. 1B). Although the groundcones of this species are usually red brown (Figs. 1A, 2A–D), the strange ones completely lack red brown coloration and are wholly yellow (Figs. 1B, 2E–J). We morphologically examined the unknown plants in comparison with the normal plants of *B. rossica* growing in the same population and other related species.

long; upper lip orbiculate-ovate, apex rounded, 4–5 mm long; lower lip shallowly and regularly 3-toothed, teeth triangular, 1–2 mm long, pilose on margin. Stamens 4, exserted; filaments glabrous, 4–6 mm long, adnate to corolla tube at the base; anthers broadly ellipsoid, 2-locular, less than 1 mm long. Ovary superior, subglobose, glabrous, ca. 3 mm in diameter, 1-locular; placentas 2, parietal. Style filiform, glabrous, 4–5 mm long; stigma capitated, ca. 1 mm in diameter. Seeds minute, numerous, ellipsoid, less than 0.3 mm long.

Note: *Boschniakia rossica* f. *flavocorollata* grows together with the trees of *Alnus maximowiczii* in the examined population. However, we could not confirm whether the plants lived parasitic on the root of this tree.

Some floral characteristics of f. *rossica* examined here, such as division of calyx and lower lip of corolla (Fig. 2A–D) were somewhat different from those reported earlier (Yamazaki 1993, Takahashi 1997, Zhang and Tzvelve 1998, Novopokrovskii 2000). Further studies on floral morphology using the plants from other populations will be needed to understand the degree of floral variation and the floral characteristics of the species concerned.

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菅原敬^a, 竹重聡^b: 南アルプスで発見されたオニク (ハマウツボ科) の新品種

2018年の南アルプス北部での野外調査において、全体黄色のオニク属植物 (ハマウツボ科) が発見された。同様の植物は、2019年の調査においても同地域内で確認された。この植物は、赤褐色を呈する普通のオニクと同所的に出現しているが、花全体が黄色なため容易に識別できる。花序の特徴、雄蕊の配置、萼や花冠等の花

形態を詳細に比較検討したところ、オニクの色変わりだと考えられたため、新品種キバナオニク *Boschniakia rossica* (Cham. & Schltdl.) B. Fedtsch. f. *flavocorollata* T. Sugaw. と命名して記載した。

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