Taxonomic notes on two endemic species of *Oberonia* Lindl. from Western Ghats, India

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Abstract

The genus *Oberonia* is known for its micro floral arrangement. Due to its minute structure, excess of new species are reported. The present paper reveals the synonymization of two recently described species of the genus *Oberonia* viz. *O. saintberchmansii* and *O. wynadensis under O. anamalayana* and *O. josephi* respectively. The original illustration and live dissected images of the species are provided for easy identification.

Keywords

*Oberonia*; heterotypic synonym; quadrate lip; Western Ghats

Introduction

*Oberonia* Lindl. is an old-world genus of mostly epiphytic herbs comprising 300 species (1). In India, 61 species have been reported in the genus (2), which is likely to be an overestimate; given the several new synonyms published in recent years (3). About 26 species have been recorded in the Western Ghats of India (4). The exploration of orchid study in the Southern Western Ghats resulted with the findings of two synonyms of newly described species of *Oberonia*. The present work is based on the examination of original protologue, type material and live collection from type locality.

Materials and Method

Taxonomic assessments were made based on available information from primary and secondary literature (2-11), herbarium specimens housed in India (CAL, CALI, KFRI, MH, MSSRF and TBGT), and living collection in Orchidarim in BSI, SRC, Coimbatore and Tamil Nadu Forest Genetics, Coimbatore, Tamil Nadu. Flowers and floral parts were also imaged with a SMZ1500 stereomicroscope and Scanning Electron Microscope imaged with SEM – Zeiss EvoM18.

Results and Discussion


*Oberonia saintberchmansii* Kad.V.George & J.Mathew, Species (India) 20: 112. 2019. syn. nov. (Holotype: INDIA, Kerala, Idukki District, way to Nedukandam, Cardomom Hills,3rd mile, 1310 m, Jan 2014, KVG & SA 0126). (Figure 1 & 2).

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Oberonia saintberchmansii was described from Idukki district, Kerala (5). The species was compared with only Oberonia falconeri Hook.f. (6) not with O. anamalayana J.Joseph. The photo plate of O. saintberchmansii is a typical species of O. anamalayana and earlier reported from Idukki and the major districts of Kerala. Later, O. saintberchmansii was erroneously synonymized under the name O. brunoniana (5 & 7). The characters viz., "lip reflexed, ovate in outline, gland dotted, glabrous, narrow and longitudinally elongated oblong around the disc, shallowly crenate, unlobuled; 2-lobuled at apex, orbicular, shallowly crenate, diverging; disc ovate, lanceolate, V-shaped," corresponds only to the species of O. anamalayana (Table 1). Therefore, O. saintberchmansii is validly placed here as synonym of O. anamalayana.

Oberonia josephi was reported in Thirunelly, Wayanad district, Kerala (8). Recently, this species distribution was recorded in Kozhikode (9). Sivadasan and Balakrishnan (10) discovered Oberonia wynadensis from Chembra peak, Wayanad district, Kerala. The authors (10) compared the species to O. josephi and O. sebastiana while describing it. It was described that, “O. wynadensis is similar to O. josephi but differs in that lateral lobes of the lip are narrowly falcate; lobules of the midlobe are spherical, crenulat-serrulate margined, and semilunar. Flower looks similar to O. sebastiana but lack of a disc at the base of the labellum; 3 or 5 nerves in the lip; and extremely large lateral lobes”.


Oberonia wynadensis Sivad. & R.T. Balakr., Nordic J. Bot. 9: 395. 1990. syn. nov. (Holotype: INIDA, Kerala, Wayanad district, Chembra Peak near Meppadi, ca 1300 m, 23.09. 1984, Balakrishnan CU 40643. (Figure 3 & 4).

Oberonia josephi was reported in Thirunelly, Wayanad district, Kerala (8). Recently, this species distribution was recorded in Kozhikode (9). Sivadasan and Balakrishnan (10) discovered Oberonia wynadensis from Chembra peak, Wayanad district, Kerala. The authors (10) compared the species to O. josephi and O. sebastiana while describing it. It was described that, “O. wynadensis is similar to O. josephi but differs in that lateral lobes of the lip are narrowly falcate; lobules of the midlobe are spherical, crenulat-serrulate margined, and semilunar. Flower looks similar to O. sebastiana but lack of a disc at the base of the labellum; 3 or 5 nerves in the lip; and extremely large lateral lobes”.

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Table 1. Comparison of diagnostic characters of O. anamalayana with O. saint-berchmansii

<table>
<thead>
<tr>
<th>Characters</th>
<th>Oberonia anamalayana (8)</th>
<th>Oberonia saint-berchmansii (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habit</td>
<td>Erect</td>
<td>Erect</td>
</tr>
<tr>
<td>Leaves</td>
<td>Ensiform, 5-17 × 2-4 cm</td>
<td>Ensiform, 15 × 2.5 cm</td>
</tr>
<tr>
<td>Inflorescence</td>
<td>Flattened and slightly winged, 20-30 cm long</td>
<td>Winged, up to 20 cm long</td>
</tr>
<tr>
<td>Flower</td>
<td>Sepals ca 2 × 1 mm, oblong, obtuse; petals as long as or a little longer than the sepals, lateral petals narrower than the sepals</td>
<td>Sepals sub similar or broader than petals, 1 × 0.5 mm, ovate or obliquely ovate, acute, entire. Petals 1 × 0.35 mm, oblong or linear, subacute</td>
</tr>
<tr>
<td>Lip</td>
<td>Lip olive brown, as long as or a little longer than the sepals, broad at the base, conical; side (lateral) lobes narrowly auriform, 1.5 mm long; midlobe very small, 0.5 mm long; lobule acute to obtuse, two lobulated having a shallow sinus with a minute mucro in between</td>
<td>Lip oval to triangular; lateral lobes ovate to auriculate, 1.85 × 1 mm; midlobe 1 × 0.7 mm; lobule acute, encircled the sinus</td>
</tr>
<tr>
<td>Fruit</td>
<td>Brown, globose</td>
<td>Brown, globose</td>
</tr>
</tbody>
</table>
While analysing the original protologue of *O. josephi*, “Lip completely exposed 3-lobed, with a small semi-lunar callosity near insertion and papillae. Lateral lobes falcate, enveloping the column and overlapping each other at their tips. Midlobe broad, divided into 2 rounded crenulated-serrulated lobes separated by a well-defined quadrate sinus” were described. *O. josephi* and *O. wyanadensis* have no differentiating traits; all characters strongly resemble the same. The same species was also obtained at the original site, Chembra Peak in the Wayanad area (*Table 2*). After dissecting the live floral material, the species of *O. josephi* was determined. As a result, *O. wyanadensis* is treated here synonym of *O. josephi*.

**Table 2. Comparison of diagnostic characters of *O. josephi* with *O. wyanadensis***

<table>
<thead>
<tr>
<th>Characters</th>
<th>Oberonia josephi (12)</th>
<th>Oberonia wynadensis (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habit</td>
<td>Acaulescent epiphyte</td>
<td>Acaulescent epiphyte</td>
</tr>
<tr>
<td>Leaves</td>
<td>Distichous, ensiform, up to 20-28 × 1.4-1.5 cm</td>
<td>Distichous, ensiform, 1-17 × 0.5-1.6 cm</td>
</tr>
<tr>
<td>Inflorescence</td>
<td>25 cm long</td>
<td>25-33 cm long</td>
</tr>
<tr>
<td>Flower</td>
<td>3 mm across</td>
<td>3 mm across</td>
</tr>
<tr>
<td>Sepals</td>
<td>Sepal and petals deflexed; dorsal sepal 2 mm long, elliptic, obtuse; lateral sepals slightly longer and broader than dorsal</td>
<td>Sepals and petals deflexed; dorsal sepal 2.3-2.5 × 1.4-1.6 mm, ovate, oblong, obtuse; lateral sepals 2.2-2.3 × 1.5-1.75 mm, broadly ovate</td>
</tr>
<tr>
<td>Petals</td>
<td>Petal 2.5 × 0.75 mm, linear, narrower oblong</td>
<td>Petals 2.5 × 0.5 mm, linear, oblong</td>
</tr>
<tr>
<td>Lip</td>
<td>Lip quadrate in outline, 4 × 4 mm; lateral lobes falcate, entire; midlobe broad, 2 rounded crenulated-serrulate lobules separated by a well-defined quadrate sinus</td>
<td>Lip quadrate, 3.6-3.8 × 4.0-4.2 mm; lateral lobes entire; midlobe 1.25-1.75 × 3.5-4.0 mm; lobules orbicular with a quadrate sinus in between</td>
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</table>
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Authors' contributions

MS and KK addressed the problem on newly described species of Oberonia and collected pertinent source of literature. CM scrutinized the manuscript. The authors read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interests to declare.

Ethical issues: None.

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