Synopsis of *Hirtzia* (Orchidaceae) with the description of a new species from Peru

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A taxonomic synopsis of the genus *Hirtzia* (Orchidaceae) is presented. An identification key to the species is provided and their morphology described, supported by illustrations of plant habit and perianth segments. A new species from Peru, *H. dodsoniana* Szlach. & Kolan., is described based on material collected in the department of Pasco.

**Introduction**

The Neotropical genus *Hirtzia* was described in Dodson and Dodson (1984) based on *H. benzingii* from Ecuador. The authors found it to resemble *Leochilus*, *Capanemia* and *Hybochilus* (all classified within Leochilinae by Szlachetko 1995 and Szlachetko & Mytnik-Ejsmont 2009), but differing by the equitant habit, simple lip, porrect and prominent gynostemium wings which surround the stigma, and the bifid rostellum after removal of pollinarium.

Twelve years later, Dodson (1996) found a second species of *Hirtzia* in Colombian Andes and named it *H. escobarii*. When describing this taxon, Dodson also mentioned that a third species of the genus occurred in Peru, but no reference material to support that statement was provided. A third species of *Hirtzia* was recently discovered in southern Colombia (Kolanowska & Szlachetko 2014).

Chase *et al.* (2009) proposed to include the two species of *Hirtzia* known at that time in *Pterostemma* and that concept was followed by Neubig *et al.* (2012). Based on the results of the phylogenetic studies both *Hirtzia* and *Pterostemma* are related to representatives of the subtribe Comparettinae (*sensu Szlachetko & Mytnik-Ejsmont 2009*), *e.g.* *Ionopsis*, *Konantzia*, *Comparettia* and *Diadenum*. Based on morphological differences between *Hirtzia* and *Pterostemma* (Table 1), Kolanowska and Szlachetko (2014) considered the two to be distinct genera.

Species of *Hirtzia* usually grow as twig epiphytes on small trees, often near creeks. They have been reported from the altitudes of 1400–2450 m a.s.l. (Dodson & Dodson 1984, Dodson 1996). Due to the small plant size and short flowering time, herbarium material of *Hirtzia* is scanty.

Our revision of herbarium material revealed the existence of an undescribed species of *Hirtzia*, simultaneously being the first record of this genus for Peru. As all previous descriptions of *Hirtzia* species were published in separate papers, we decided to provide here a synopsis of the genus. The morphological descriptions are accompanied with information of the habitat
and distribution of each species. A comparative morphology of *Hirtzia* species is presented in Table 2.

**Material and methods**

A total of over 1300 herbarium specimens and liquid-preserved flowers of oncidioid orchids

<table>
<thead>
<tr>
<th>Table 1. Comparative morphology of <em>Hirtzia</em> and <em>Pterostemma</em>.</th>
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</thead>
<tbody>
<tr>
<td><strong>Hirtzia</strong></td>
</tr>
<tr>
<td>Leaves</td>
</tr>
<tr>
<td>Dorsal sepal</td>
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<tr>
<td>Petals</td>
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<tr>
<td>Lateral sepals</td>
</tr>
<tr>
<td>Lip</td>
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<tr>
<td>Lip callus</td>
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<tr>
<td>Gyrostemium</td>
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<tr>
<td>Column part</td>
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<tr>
<td>Column foot</td>
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<tr>
<td>Anther</td>
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<td>Connective</td>
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<td>Pollinia</td>
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<td></td>
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<td></td>
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<tr>
<td>Stigma</td>
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<td>Rostellum</td>
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<td>Tegula</td>
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</table>

**Table 2. Comparative morphology of *Hirtzia barrerana*, *H. benzingii*, *H. escobarii* and *H. dodsoniana*.**

<table>
<thead>
<tr>
<th>Character</th>
<th><em>H. barrerana</em></th>
<th><em>H. benzingii</em></th>
<th><em>H. escobarii</em></th>
<th><em>H. dodsoniana</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves</td>
<td>non-articulated</td>
<td>non-articulated</td>
<td>articulated</td>
<td>non-articulated</td>
</tr>
<tr>
<td>Dorsal sepal</td>
<td>ovate to ovate-elliptic</td>
<td>ovate-triangular</td>
<td>ovate-triangular</td>
<td>pandurate</td>
</tr>
<tr>
<td>Lateral sepals</td>
<td>connate for 1/2–3/4 of their length</td>
<td>connate for 1/2–2/3 of their length</td>
<td>connate for over 1/2 of their length</td>
<td>connate for 1/2 of their length</td>
</tr>
<tr>
<td>Petals</td>
<td>lanceolate-ligulate</td>
<td>narrowly ovate-triangular to ligulate</td>
<td>oblong-falcate</td>
<td>oblong-pandurate</td>
</tr>
<tr>
<td>Lip</td>
<td>pandurate; hypochile obovate; epithile suborbicular, inconspicuously 3-lobulate fleshy pad in center of epithile</td>
<td>pandurate; hypochile oblong; epithile oblong; epithile transversely elliptic</td>
<td>3-lobulate</td>
<td></td>
</tr>
<tr>
<td>Staminodes</td>
<td>slightly twisted</td>
<td>slightly twisted</td>
<td>not twisted</td>
<td>not twisted</td>
</tr>
</tbody>
</table>
deposited in AMES, AMO, BM, COL, CUV, F, FLAS, HUA, JAUM, K, MO, NY, P, PMA, UGDA, VALLE and W (Thiers 2014) were examined. Every studied sheet was photographed and the data from the labels were copied. Both vegetative and generative characters of each plant were examined. The shape, size and relevant characteristics of the vegetative and reproductive parts of each plant were considered.

**Taxonomic treatment**

**Hirtzia Dodson**


Epiphytic, small plants up to 9 cm tall. Leaves several, equitant, conduplicate, up to 7 cm long. Inflorescence up to 5 cm long, 2–5-flowered, arising from leaf axils. Flowers resupinate. Pedicellate ovary glabrous, longer than floral bracts. Tepals free. Dorsal sepal ovate, pandurate or ovate-elongate. Petals ovate-pandurate to lanceolate-ligulate. Lateral sepals connate in basal 1/2–3/4. Lip fleshy, thick, sessile to clawed, pandurate to oblong-ovate in outline, bipartite. Gynostemium elongate, rather slender, with column part much shorter than anther and two large apical wings. Anther dorsal, erect, operculate, dorsiventrally compressed, oblong ellipsoid, obscurely 2-chambered. Connective narrow, rather thin, forming an apical roof-like projection in front. Pollinia 2, subglobose, porate, hollow inside, hard. Calyptrae sticky, amorphous. Apical laminaria obscure. Stigma small, oblong elliptic, deeply concave. Rostellum erect, oblong-triangular, sub-obtuse at apex; remnant distinctly 2-lobed at apex, with small oblique, concave plate on ventral surface, lobes acute, short (Fig. 1).

**Key to the species of Hirtzia**

1. Leaves articulated ........................................... *H. escobari*
   1. Leaves non-articulated .................................. 2
2. Staminodes not twisted, lip prominently clawed .......... 2
   .......................... *H. dodsoniana*
2. Staminodes twisted, lip sessile ................................ 3
3. Lateral sepals connate up to about 1/2 of their length, petals narrowly ovate-triangular, lip oblong ovate ......... 3
   .......................... *H. bengzilii*

3. Lateral sepals connate up to about 3/4 of their length, petals lanceolate-ligulate, lip pandurate .... *H. bengzilii*

**Hirtzia escobari** Dodson (Fig. 2)

Orquideología 20: 8. 1996. — Type: Colombia. Antioquia, Municipio La Unión, km 17 road from La Unión to Abejorral, 2450 m, 9 Sep. 1984 C. Dodson et al. 15258A (holotype RPSC, lost?). — *Pterostemma escobari* (Dodson) M.W. Chase & N.H. Williams, Orchids (West Palm Beach) 78: 238. 2009.

Leaves equitant, conduplicate, articulated, up to 3.5 cm long, 0.5 cm wide, acute. Inflorescences up to 4 cm long, 2–4-flowered. Flowers small, sepals greenish-white, petals white, lip white with red callus. Floral bracts up to 1 mm long triangular, acute. Pedicellate ovary up to 5 mm long. Dorsal sepal up to 5.8 mm long, 3 mm wide, ovate-triangular, obtuse at apex. Petals up to 6 mm long, 1.8 mm wide, oblong-falcate, obtuse. Lateral sepals connate for more than 2/3 of their length, free apices broadly ovate-subcircular, curved upwards. Lip up to 6 mm long, 3 mm wide, pandurate; hypochile oblong; epichile indistinctly 3-lobed, concave in apical part; callus a fleshy, pandurate pad. Gynostemium up to 5 mm long, staminodes non-twisted. Flowering in September.

This is the only species in *Hirtzia* with articulated leaves.

**DISTRIBUTION:** Known only from the type locality in central Andean Cordillera (Fig. 3).

**HABITAT:** Growing as twig epiphyte in cloud forest at the altitude of about 2450 m a.s.l.

**Hirtzia dodsoniana** Szlach. & Kolan., *sp. nova* (Fig. 4)


Plant small, about 6 cm tall. Leaves 13, non-articulate, equitant, conduplicate, up to 4 cm long, 0.4 cm wide. Inflorescence 3 cm long, 2–3-flowered, arising from leaf axils. Flowers white with purple marks. Floral bracts about
2.5 mm long. Pedicellate ovary 10 mm long. Dorsal sepal 6 mm long, 3 mm wide, ovate-pandurate, apex with obtuse apiculus, 3-veined. Petals 6 mm long, 2 mm wide, oblong-pandurate, apex obtuse, 3-veined. Lateral sepals connate in basal 3.5 mm, 7.5 mm long, 3 mm

wide, ovate, apex obtuse, divergent, 2-veined. Lip 6.7 mm long, fleshy, thick, long-clawed, pandurate; claw 1.4 mm long; hypochile 3.8 mm long, 1.8 mm wide, oblong, 3-veined, with margins pubescent along basal fourth, apical part squeezed, with a pubescent fleshy pad; epichile transversely elliptic, concave apex obtuse. Gynostemium about 5 mm long. Staminodes not twisted. Capsule not seen. Flowering in May.

This species is easily distinguished from the other *Hirtzia* species by its ovate-pandurate dorsal sepal, long-clawed lip, ciliate margins of the basa part of lip, and transversely elliptic lip epichile. Unlike in *H. barrerana* and *H. escobarii*, the lateral sepals of *H. dodsoniana* are connate almost to the middle. Also *H. escobarii* has non-twisted staminodes, but the leaves of that species are articulated.

**Distribution:** Known exclusively from eastern slopes of Central Andes (Fig. 3). The distance between the only locality of *H. dodsoniana* and the nearest known population of other *Hirtzia* species is about 1000 km.

**Habitat:** It grows epiphytically on small trees in wet grasslands at the altitude of 1950 m a.s.l.
Hirtzia benzingii Dodson (Fig. 5)

— Pierostemma benzingii (Dodson) M.W. Chase & N.H. Williams, Orchids (West Palm Beach) 78: 238. 2009.

Leaves equitant, conduplicate, non-articulated, up to 5 cm long, 0.5 cm wide, acuminate at apex. Inflorescences up to 5 cm long, 3–5-flowered. Flowers small, tepals yellow barbed with dark red, lip white. Floral bracts 2.5–3 mm long, triangular. Pedicellate ovary up to 5.5 mm long. Dorsal sepal 4.5–5 mm long, 2–3 mm wide, ovate-triangular to ovate, obtuse. Lateral sepals 4.5 mm long, 2.1 wide, connate in basal 1/2–2/3, free apices ovate, divergent. Petals up to 5 mm long, 1.2–2 mm wide, narrowly ovate-triangular to ligulate, acute. Lip 3–5 mm long, 1.5–2 mm wide, oblong-ovate in outline, concave in apical part; callus a fleshy pad. Gynostemium 3.5 mm long. Staminodes slightly twisted. Flowering in June.

This species is characterized by narrowly ovate-triangular to ligulate petals and an oblong-ovate lip.

DISTRIBUTION: Known exclusively from eastern slopes of Ecuadorian Andes (Fig. 3).

HABITAT: Growing as twig epiphyte along the embankments in montane wet forest at the altitude of about 1850 m a.s.l.


Hirtzia barrerana Kolan. & Szlach. (Fig. 6)


Leaves equitant, conduplicate, non-articulated, 2–5.7 cm long, 0.3–0.8 cm wide. Inflorescences up to 3.5 cm long, subdensely few-flowered. Flowers small, greenish-yellow with white lip and yellow callus. Floral bracts up to 5 mm long, triangular. Pedicellate ovary up to 8 mm long. Dorsal sepal 4.8–6.8 mm long, 2.9–3 mm wide, ovate-elliptic, rounded or shortly bifid at apex. Lateral sepals 7–7.2 mm long, ovate-ligulate, connate for 1/2–3/4 of their length in a
synsepal, about 5.5 mm wide in lower part, subquadrate in outline, concave at base. Petals 5.1–6.6 mm long, 1.9–2 mm, lanceolate-ligulate, apex rounded. Lip 5.5–6.5 mm long, 2.9–3 mm, truncate at base, pandurate; hypochile obovate; epichile suborbicular, inconspicuously 3-lobulate, lobules rounded, concave below callus, margins slightly undulate; callus a three knobbed fleshy pad in center of epichile. Gynostemium up to 4.3 mm long. Staminodes slightly twisted. Flowering in January and August.

This species is characterized by a subquadrate synsepal, lanceolate-ligulate petals, and lip shape.

**DISTRIBUTION:** The range of this species is restricted to southern Colombian Andes (Fig. 2).

**HABITAT:** It grows as a twig epiphyte in the edge of the humid montane forest on mossy trunk and branches of *Tibouchina lepidota* (Melastomataceae) and *Psidium* sp. (Myrtaceae) at the altitudes of about 2100–2300 m a.s.l.

**REPRESENTATIVE SPECIMENS:** Colombia. Dept. Putumayo, Mountains near Santiago, 29 Aug 2012 Kolanowska & Barrera s.n. (COL, UGDA); km 42 Pasto to Sibundoy, Dodson et al. 17013 (RPSC).

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References


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