



Research article

Notes on taxonomy, morphological variation and distribution of *Oryza meyeriana* (Zoll. & Moritzi) Baill. (Poaceae) in the Andaman and Nicobar Islands

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Abstract: Taxonomic history and morphological variations of wild rice, *Oryza meyeriana* in the Andaman and Nicobar Islands is discussed based on its earlier collections at lower elevations between 30 and 200 metres and the present record at 577 metres elevation at Saddle peak in North Andaman. Updated nomenclature, description, photo plate and present status of the taxon in the Islands are provided.

Keywords: *Oryza meyeriana* - Poaceae - Andaman and Nicobar Islands - India.

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INTRODUCTION

Oryza L. comprises 22 taxa including wild and cultivated plants, distributed in tropical and subtropical regions of the world (Duistermaat Helena 1987, Gong *et al.* 2000, Clayton *et al.* 2006 onwards, SanchezPaul *et al.* 2014). This polymorphic genus is represented in India by 11 species (Prasanna *et al.* 2020). Of which, *Oryza meyeriana* (Zoll. & Moritzi) Baill. is a tertiary wild relative of *O. sativa* and *O. glaberrima* Steud. (USDA, ARS, National Genetic Resources Program, 2017). *O. meyeriana* is native to Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, and Thailand (Vaughan 1994). In the Andaman Islands, this species was recorded for the first time in 1985 from Rutland Island in South Andaman (J.L. Ellis 12248 - in PBL), subsequently in 1986 and 1996 from North Andaman at Kalpong Dam area respectively by G. Chakraborty & G.S. Kindo 12376 and G.S. Lakra 15054 (both specimens are in PBL). Lastly, the species was collected in 2003 from Rutland in South Andaman (K. Karthigeyan 19501 - in PBL). All these collections were recorded from between 30 to 400 m elevations along the rocky slopes and streams in inland forests. The present authors collected a variant of the species at 577 m elevation at Saddle Peak National Park in North Andaman. The collection locality is about 196 km away from Rutland Island and 4.2 km away from the Kalpong Dam area. The herbarium specimens are prepared and deposited in PBL.

TAXONOMY

Oryza meyeriana (Zoll. & Moritzi) Baill., Hist. Pl. 12: 166. 1894.

Padia meyeriana Zoll. & Moritzi, Syst. Verz. Zoll.: 103. 1846.

Type: Java, near Cibodas, 27.11.1842, Zollinger 718 (iso. BM!, G, K!, 2 sheets, L!, LE, P!, US).

Oryza meyeriana (Zoll. & Moritzi) Baill. var. *inandamanica* (J.L. Ellis) Veldkamp in Blumea 36: 179. 1991. *O. inandamanica* J.L. Ellis in Bull. Bot. Surv. India 27(1–4): 225. 1985. Type: India, Andamans, Rutland Island, 26.07.1986, Ellis 12248, holo. CAL!; iso. PBL!

Perennial herb; culms up to 45 cm high, erect or decumbent, slender or robust. Leaf-sheaths up to 8 cm long, glabrous, auricles ciliate; ligules up to 1 mm long, membranous with a row of hairs at base; leaf-blades up to 15



Figure 1. *Oryza meyeriana* (Zoll. & Moritzi) Baill.: **A**, Habit; **B**, Portion of raceme showing spikelets.

× 0.8 cm, linear, elliptic or lanceolate, scabrid along nerves. Panicle 3–5 cm long, usually unbranched, rarely single branched at base, open or linear to narrowly contracted, erect; peduncles up to 8 cm long. Spikelets 5.0–5.5 mm long, 2–3-flowered, lanceolate to linear-lanceolate, light green, pale yellow or sometimes yellowish-brown. Florets *c.* 0.5 cm long, basal 2 sterile and upper fertile; pedicels up to 0.8 cm long. Glumes unequal, 0.5–0.8 mm long, cup-shaped, ovate-acuminate. Lemmas *c.* 0.6 × 0.3 cm, elliptic-oblong, thick, awnless, 3-nerved. Paleas *c.* 0.5 × 0.15 cm, similar to lemmas, linear to linear lanceolate, slightly thickened at base. Stamens 6; anthers *c.* 0.25 cm long; ovary *c.* 0.4 cm long; styles *c.* 0.1 cm long; stigmas *c.* 2 cm long. Caryopses *c.* 0.5 × 0.2 cm, linear-oblong.

Fl. & Fr.: Throughout the year.

Habitat & Ecology: Occurring along the rocky slopes and streams, 30–570 m elevations.

Specimens examined: South Andaman, Rutland Island, 26.07.1986, *J.L. Ellis* 12248 B–M; Badakhadi, 07.05.2003, *K. Karthigeyan* 19501; North Andaman, Kalpong area, 24.12.1986, *G. Chakraborty & G.S. Kindo* 12376; Kalpong, No. 10 Right Fork, 22.09.1996, *G.S. Lakra* 15054; Saddle Peak, 577 m, (N 13° 09.245', E 93° 00.916'), 09.01.2019, *Vivek C.P. & Sanjay Mishra* 33200 (all in PBL).

DISCUSSION AND CONCLUSION

Taxonomy and delimitation of *Oryza meyeriana* have been subject of much discussion in the past due to its high morphological variations. According to Tateoka (1962), *O. meyeriana* is a complex group inclusive of *O. granulata* Nees & Arn. ex G. Watt. It is one of the key species of 'Meyeriana complex', which is tolerant to different biotic and abiotic stresses (Molla *et al.* 2018). In this context, it is worth discussing the morphological variations and complex taxonomic history of the taxon in the Andaman and Nicobar Islands. Ellis (1987) published a new species of wild rice *Oryza indandamanica* J.L. Ellis from the Rutland Island in South Andaman

as allied to *O. granulata* Nees & Arn. ex G. Watt (latter is presently a synonym of *O. meyeriana*). VasudevaRao (1989) argued the identity of *O. indandamanica* and concluded its differences from *O. meyeriana* are quantitative and inconstant, thus to be treated synonymous to the latter. Subsequently, Veldkamp (1991) recognized the smooth and non-granular spikelets of *O. indandamanica* as distinct from *O. meyeriana* and treated the Andaman elements as *O. meyeriana* var. *indandamanica*. Later, Ellis (1994) pointed out more convincing details to prove the distinct species status of *O. indandamanica*. Whereas, subsequent publications (Pandey & Diwakar 2008, Singh *et al.* 2014 & 2021, Murugan *et al.* 2016, Karthigeyan 2017) did not accept the species status of *O. meyeriana* though Prasanna *et al.* (2020) followed Veldkamp (1991).

The present authors found convincing morphological variations of *O. meyeriana* in the Andaman Islands which justify the treatment of *O. indandamanica* and *O. meyeriana* var. *indandamanica* as synonyms of *O. meyeriana* (Table 1).

Table 1. Major variations of typical *Oryza meyeriana* and the elements of *O. meyeriana* confined to the Andaman Islands.

Characters	<i>Oryza meyeriana</i> (typical)	<i>O. meyeriana</i> (Andaman variant): Based on J.L. Ellis 12248; K. Karthigeyan 19501; G. Chakraborty & G.S. Kindo 12376; G.S. Lakra 15054
Habit	Tufted	Diffused, slender
Inflorescence	Branched	Unbranched or rarely one branched
Ligule	Longer, 0.8–1.2 mm long	Shorter, up to 0.1 mm long
Lemma	Granular	Non-granular

In addition, the present collection of the taxon at 577 m elevation at Saddle Peak (Vivek C.P. & Sanjay Mishra 33200) shows variations from its earlier collections in the Andaman Islands having rather stout and bamboosoidal habit (Fig. 1), and distributed along the rocky slope of the hills which is far beyond a permanent water source. While earlier collections of the taxon in the Islands were diffused in habit and distributed in association with water streams.

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