

***Globba teesta* sp. nov. of Zingiberaceae from Darjeeling Himalaya in West Bengal, India**

Suman Nirola¹ and A. P. Das

Taxonomy & Environmental Biology Laboratory, Department of Botany, University of North Bengal,
Siliguri 734013, West Bengal, India

E-mails: suman_nirola@yahoo.co.in & apdas.nbu@gmail.com

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Abstract

A new species of *Globba* Linnaeus (Zingiberaceae), *G. teesta* S. Nirola & AP. Das, from the Teesta River Valley in Darjeeling Himalaya of West Bengal, India is recognized with detailed description, colour photographs and illustrations. It appeared complete different from all other species of *Globba* found in the area with its completely white flowers. The new species differs from the other species in characters of size and life of bracts, colour and size of flower and floral parts etc.

Key words: New species, *Globba teesta*, Darjeeling, West Bengal, India

INTRODUCTION

The genus *Globba* Linnaeus (Zingiberaceae) consists of around 110 accepted species (<http://www.theplantlist.org/1.1>; Sabu 2006) recorded through out the globe and almost of the species are more or less confined within the tropical Asia i.e. the Indian Subcontinent, southern China and Southeast Asia (Himalayas to Indochina, Malaysia, Indonesia, Philippines, etc.) upto New Guinea and one species in Australia. (Kress *et al.* 2002; Sabu 2006). In India, the genus is represented by at least 22 species distributed mostly between the Eastern Himalayas to NE India and along the Western Ghats in the South (Thongam *et al.* 2013).

The richness of the flora of Eastern Himalaya, including the hills and hill ranges in Darjeeling and Sikkim, is well known for the floristic richness where the Zingiberaceae is highly represented including the genus *Globba* Linnaeus (Hara 1966, 1971; Ohashi 1975; Hara *et al.* 1978; Das & Chanda 1987; Noltie 1994; Hajra & Verma 1996). During the floristic exploration for the Monocotyledonous flora of Darjeeling district a population of interesting pure white flowered species of *Globba* with persistent pale green bract and bracteoles was detected in August 2011 from the ridge of the River Teesta near the Coronation Bridge at Sevok. The specimen was critically studied and compared with the other species and revealed that it was a new species which possesses many floral characters which did not match with any of other identified species of the genus (<http://apps.keew.org>; www.efloras.org; Sabu 2006).

***Globba teesta* S. Nirola & AP. Das, sp. nov. [PLATE - I; Figures 1 & 2]**

Perennial herb. Rhizomes slender, creeping. Leafy pseudostems semierect, 0.6 – 1 m tall. Leaves 6 – 10, sessile, alternate; ligule 6 – 10 mm, pubescent, shallowly 2-lobed, lobes obtuse to rounded, tip ciliated; lamina lanceolate, 20 – 35 × 4 – 8 cm, shallowly oblique ribbed

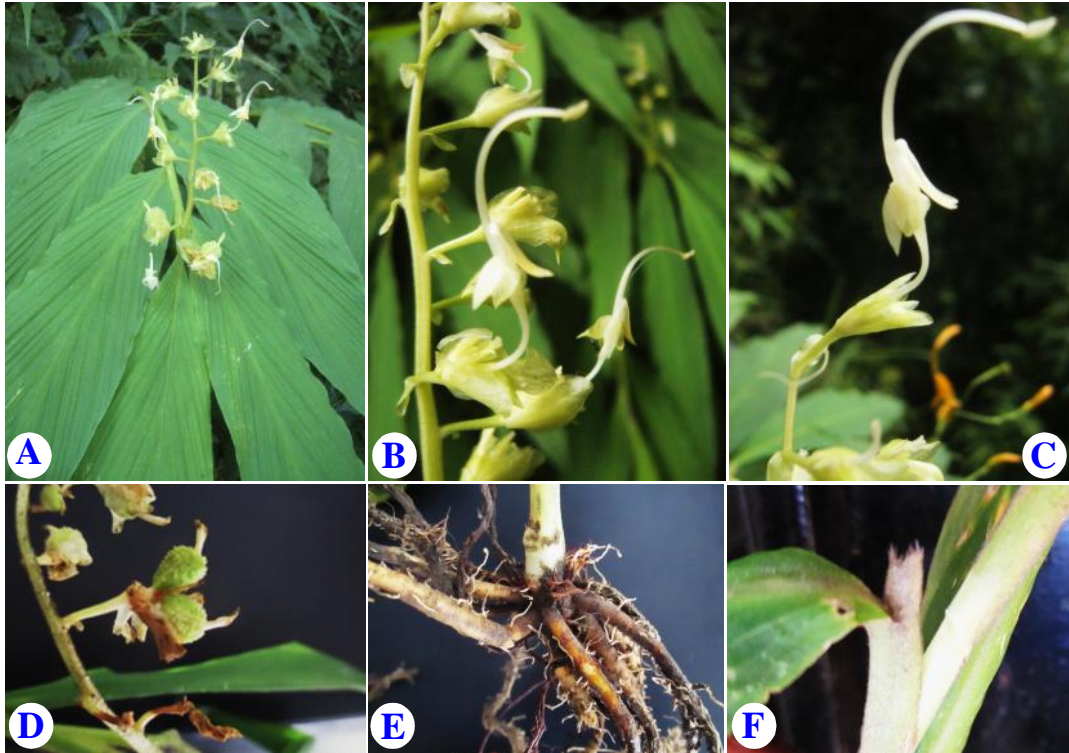


Plate I. *Globba teesta* S. Nirola & AP. Das, *sp. Nov*: **A.** Habit; **B.** Inflorescence; **C.** A flower; **D.** Fruits; **E.** Rhizome and roots; **F.** Leaf base with ligule



Figure 1. *Globba teesta* S. Nirola & AP. Das, *sp. Nov*: **A.** A twig; **B.** Rhizomes and roots; **C.** a leaf; **D.** leaf base and ligule; **E.** a cincinnus; **F.** a fruit.

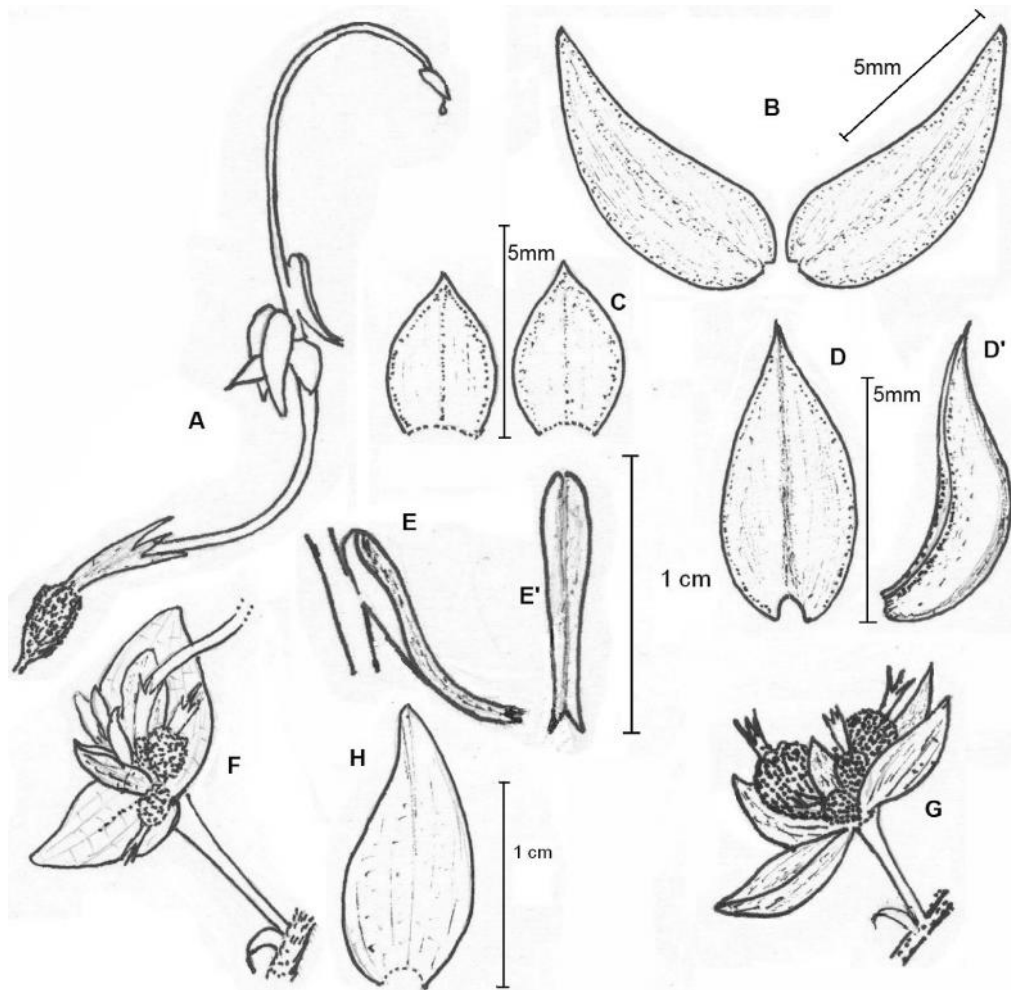


Figure 2. *Globba teesta* S. Nirola & AP. Das, *sp. Nov*: **A.** A flower; **B.** Lateral staminodes; **C.** Lateral corolla lobes; **D.** Dorsal corolla lobe (**D** front view, **D'** side view); **E.** Lip (**E** side view, **E'** front view); **F** & **G.** Details of a cincinus; **H.** Lowest bracteole

and plicate, long acuminate, base cuneate, minutely puberulent beneath. Panicle lax, terminal, 8 – 14 cm long, 6 – 14 bracteate peduncles each subtending a cincinnus of white flowers; main axis curved upward, puberulent, bears cincinni right from the base i.e. from the point of curvature; cincinus stalk 8 – 17 mm, subtended by a persistent, membranous, pale green, translucent, lanceolate, recurved bract, 5 – 6 × 1.5 – 2 mm. Cincini 6 – 10 flowered, densely compact, each subtended with gradually smaller pale green, persistent, translucent, ovate-lanceolate bracteoles, forming an involucre around flowers. Lowest and largest bracteole 8 – 15 × 5 – 10 mm. Flowers pure white; calyx tubular, 5 – 6 mm, greenish, 3-lobed; corolla-tube slender, 11 – 15 mm, widening gradually towards the mouth, white, glabrous, curved above; lobes 3, white; dorsal lobe concave, boat shaped, 5 – 6 × 1 – 1.5 mm, slightly keeled, keel slightly greenish; lateral lobes 4 – 5 × c. 4 mm, ovate, reflexed; lateral staminodes 2, petaloid white, lanceolate, slightly asymmetrical, 6 – 7 × 2 – 2.3 mm; lip 8 – 9 × c. 1 mm, white, connate with corolla tube, reflexed, apex pale yellow, 2-cleft; filaments long, curved bow shaped, 1.5 – 1.8 cm, white. Anther c. 1.5 × 1 mm, devoid of any appendage, white. Capsule oblong-globose, 8 – 10 mm, minutely warty and verrucose. Bulbils not formed.

- Flowering* : July – August; *Fruiting*: August – September.
Exsiccate : **HOLOTYPE**: Around Baghpul, 200 – 300 m, S. Nirola & AP Das 1334A, dtd. 06.07.2011 [CAL]; **ISOTYPE**: S. Nirola & AP Das 1334B, dtd. 06.07.2011 [NBU].
Status : Rare
Habitat : Oblique to pendulous on shady and moist hill slopes.
Local Distribution : Teesta River Valley, Around Baghpul (Coronation Bridge), 200 – 300 m.
General Distribution : Endemic to Darjeeling Hills.
Etymology: The specific epithet is named after the River Teesta, the life-line for Sikkim and Darjeeling Hills.

DISCUSSION

The new species, *Globba teesta* is morphologically distinguishable from other species of the genus mainly by its pure white flowers, persistent inflorescence bract and broad, ovate-lanceolate, persistent bracteoles. The new species was critically compared with the other species of *Globba* having these morphological characters but in all cases the results showed

Table 1. Comparison of distinguishing characters *G. teesta* with other species bearing three major distinguishable characters

Distinguishing characters	Other species bearing the character	Differences with <i>G. teesta</i>
Flower color: Pure White	<i>G. albiflora</i> <i>G. atrosanguinea</i> <i>G. campsohylla</i>	Bracts and bracteoles deciduous; cincini much elongated, imbricate; anther winged and appandaged
	<i>G. lucantha</i>	Bracts deciduous; cincini few flowered; anther winged, yellow, appandaged
	<i>G. pumila</i>	Bracts and bracteoles purplish white, deciduous; anther winged, yellow
	<i>G. spathulata</i>	Cincinus stalk short, 2 – 5 mm so panicles appear spike like; bracts broadly ovate, greenish, leafy; corolla lobes yellow; lateral staminodes strongly truncate, obscurely dentate; anther winged
Bract: Persistent	<i>G. cernua</i>	Bulbils formed; flowers yellow; anther winged and appandaged; fruits smooth
	<i>G. substratiglosa</i>	Flowers yellow; fruits smooth, black, pubescent
	<i>G. marantina</i>	Panicle spike like, terminal flowers blooming first and then gradually towards the base; flowers orange-yellow; anther winged, appandaged, yellow
	<i>G. spathulata</i>	Mentioned above
	<i>G. arracanensis</i> <i>G. sherwoodiana</i>	Bract leaf like, larger than floral parts; calyx and corolla lilac or yellow
Bracteoles: Broadly ovate-lanceolate, persistent	<i>G. arracanensis</i>	Mentioned above
	<i>G. pumila</i>	
	<i>G. spathulata</i>	

strong differences in their character states. Comparison of *G. teesta* with *G. albiflora* Ridley, *G. atrosanguinea* Teijsmann & Binnendijk, *G. campsophylla* K. Schuman, *G. lucantha* Miquel, *G. pumila* Ridley, *G. spathulata* Roxburgh, etc. having white floral parts; with *G. cernua* Baker, *G. substratiglosa* King ex Baker, *G. marantina* Linnaeus, *G. spathulata* Roxburgh, *G. arracanensis* Kurz, *G. sherwoodiana* W.J. Kress & V. Gowda, etc. in having persistent bracts and with *G. arracanensis* Kurz, *G. pumila* Ridley, *G. spathulata* Roxburgh, etc. in having broad, ovate-lanceolate, persistent bracteoles are shown in the Table 1:

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