

NOTES ON *BEGONIA BURKILLII* DUNN AND ITS REDISCOVERY FROM  
ARUNACHAL PRADESH, INDIA

AMAD UDDIN, S. PHUKAN AND S.K. BORTHAKUR<sup>1</sup>

*Botanical Survey of India, Eastern Circle, Shillong 793 003*

<sup>1</sup>*Department of Botany, Gauhati University, Guwahati*

ABSTRACT

*Begonia burkillii* Dunn (Begoniaceae) is recollected from Namdapha Biosphere Reserve, Arunachal Pradesh, India, near its type locality after a gap of 96 years. Critical taxonomic investigations and illustrations of the species along with notes on the sect. *Sphenanthera* with an artificial key to the species recorded from India are provided.

INTRODUCTION

An extensive collection tour to Namdapha Biosphere Reserve as part of the revision of family Begoniaceae for Flora of India Project covering a large area of Indo-Myanmar border has evolved some interesting findings for the family (Ambrish & Uddin 2006; Uddin & Phukan 2007). During the tour as many as 20 species of *Begonia* were collected. One of these species, collected in its vegetative state was grown in the garden of Botanical Survey of India, Eastern Circle, Shillong and identified after flowering and fruiting as *B. burkillii* Dunn. The identification was done with the help of the original description and the type specimens available at CAL and K (cibachromes). This is the only collection after the type collection since no specimen was found in the major herbaria for the region viz. CAL, ASSAM, ARUN.

*Begonia burkillii* was described for the first time by S.T. Dunn in 1920 based on collection of I.H. Burkill from the Abor hills area which borders India and Myanmar. According to Dunn (1920) the habit of the plant is monoecious and the fruit are 2-horned. However both of these characters as revealed by the observations of the live plants as well as the type specimens are not correct. Dunn (1920) was confused of the plant to be monoecious and protendrous as he mentioned "The female flowers are said to appear about three weeks after the male" Definitely this was based on Burkill's observations as Burkill (1924) noted "All the first flowers were male and three weeks passed before female flowers appeared" During the present study it is observed that the plant is dioecious and the male and female plants flower almost at the same time. Fruit of the plants are observed to be 4-horned at maturity but sometimes the adjacent horns fuse together appearing 2 or 3-horned structure.

Recently the species was recorded from Myanmar by M.C. Tebbitt depending on some collections older than the type collections (Tebbitt, 2003) but the description reveals that the specimens are having 3-winged fruits which is contradictory to the first author's personal observations as well as the original description. The species could not be collected throughout the last century though extensive collections were done in the recent years by Botanical Survey of India as well as some other agencies. Owing to this it was included in the Red Data Book of Indian Plants (Kumar & Bhattacharyya 1990) and treated under rare category by Walter & Gillett (1998). Chauhan (1996) omitted the species in his work. However the author collected the species from few pockets on the way from Deban to Gandhinagar track. Detailed taxonomic investigations along with line drawings are provided to facilitate easy identification of the species in the field.

*Begonia burkillii* belongs to the Asian section *Sphenanthera* (Hassk) Warb. which includes most of the fleshy fruited species reported from the region (Irmscher 1925; Doorenboss & al. 1998). Doorenboss & al. (1998) in their infra-generic revision recognized 27 species for the section. Subsequently one more species was described recently from Sumatra (Tebbitt 2005) and some more species were transferred to the section and the total number turned around 36 (Hoover & al. 2004). The species of the section are distributed throughout the Asian countries which fall under or touch the Greater Himalayas viz. India, China, Taiwan, Myanmar, Malayasia and the Moluccus. The highest number of 11 species were recorded from China (Shui & al. 2002) ; 2 species each were recorded from Malayan Peninsula, Myanmar and Philippines and a single species was recorded from Papua New Guinea. In India as many as 6 species are in record till date which is definitely lesser than the actual number since only sporadic work has been done for the family after the monumental work of C.B. Clarke (1879). They are distributed throughout the North-Eastern States and the Eastern Himalayas. The members of the section can be readily distinguished from any other section by their succulent habit and fruits fleshy, berry like, turbinate, thick walled, wings much reduced or absent, dehiscence of the seeds by decaying off of the fruits unlike all other sections where it is by rupture or falling off of the faces of the wings. In the natural habitat it is observed that the species of the section require much moisture and humidity than the species of any other section. They grow in forest clearings or in rocky crevices, besides the streams in association with *Impatiens*, *Alocasia*, *Colocasia*, *Selaginella*, *Polytrichum*, *Funaria*, *Marchantia* etc. Most of the species are sour in taste for which the forest people and the tribes take it against dehydration. Paste (Chutney) of *Begonia* is also prepared and taken with meat as appetizer. Moreover they are also useful for stomach problems such as dysentery, dyspepsia etc. and also in mild fever. They are also used as leech repellent in the jungle. An artificial key to the species of this section recorded so far from the present Indian boundary is followed which will be helpful for a better understanding of the section.

*Key to the Species of Genus Begonia sect. Sphenanthera for India :*

- |  |                            |
|--|----------------------------|
| 1a. Plants caulescent                              | ... 2                      |
| 1b. Plants acaulescent                             | ... 3                      |
| 2a. Fruits 3-celled                                | ... <i>B. longifolia</i>   |
| 2b. Fruits 4-celled                                | ... <i>B. roxburghii</i>   |
| 3a. Lamina and petioles pubescent                  | ... <i>B. aborensis</i>    |
| 3b. Lamina and petioles glabrous                   | ... 4                      |
| 4a. Lamina cordate, plants up to 1 m high          | ... <i>B. silletensis</i>  |
| 4b. Lamina ovate-elliptic, plants up to 30 cm high | ...5                       |
| 5a. Fruits 4-horned                                | ... <i>B. tessaricarpa</i> |
| 5b. Fruits 2-horned                                | ... <i>B. burkillii</i>    |

***Begonia burkillii*** Dunn, Kew Bull. Misc. Inform. 1920(4): 109. 1920; Burkill in Rec. Bot. Surv. India 10 (1): 289. 1924; Kumar & Bhattacharya in Nair & Sastry (ed.), Red Data Book Ind. Pl. 3 : 85. 1990.

Plants acaulescent, rhizomatous, dioecious, 15-30 cm high; rhizome 2.6-6.2 mm in diameter, creeping, rooting at nodes. Leaves basal; stipules 0.6 - 0.8 × 0.3 - 0.5 cm ovate-lanceolate, glabrous, entire, acute-acuminate, aristate, persistent; petioles 7-22.5 cm long, glabrous; lamina 10 - 20 × 3.7 - 7.8 cm, glabrous, oblique, sinus 2 - 2.3 cm deep, ovate - cordate or lanceolate, acute - acuminate, sinuate-dentate, often variegated, bluish green on the upper surface with light and dark bands of white blotches, pale green on the lower surface; venation palmate, 7-nerved. Inflorescence axillary biparous cymes, 1 - 8-flowered, unisexual; scape 4.5 - 15.5 cm, glabrous. Male flowers : pedicel 1.5 - 5.9 cm, slender with sparse microscopic glandular hairs; bracts 1 - 2 × 0.2 - 0.6 cm, membranous, acute, entire, oblong or linear - elliptic, caudate, deciduous; sepals 2, ovate, 3.1 - 4 × 2.1 - 2.5 cm, acute, pale rose or white, glabrous; petals 2, lanceolate - elliptic, 1.2 - 1.4 × 0.4 - 0.8 cm, acute, glabrous; stamens c. 55, free or slightly monadelphous forming a dome shaped mass; filaments 1.1 - 2.5 mm, free at base; receptacle raised; anthers 1.5 - 2 mm long, elliptic - obovoid; connective projecting 0.25 - 0.5 mm, rounded. Female flower : pedicel 1.4 - 1.6 cm; sepals 2, obovate-oblancheolate, 3.1 - 4 × 2.1 - 2.5 cm, acute pale

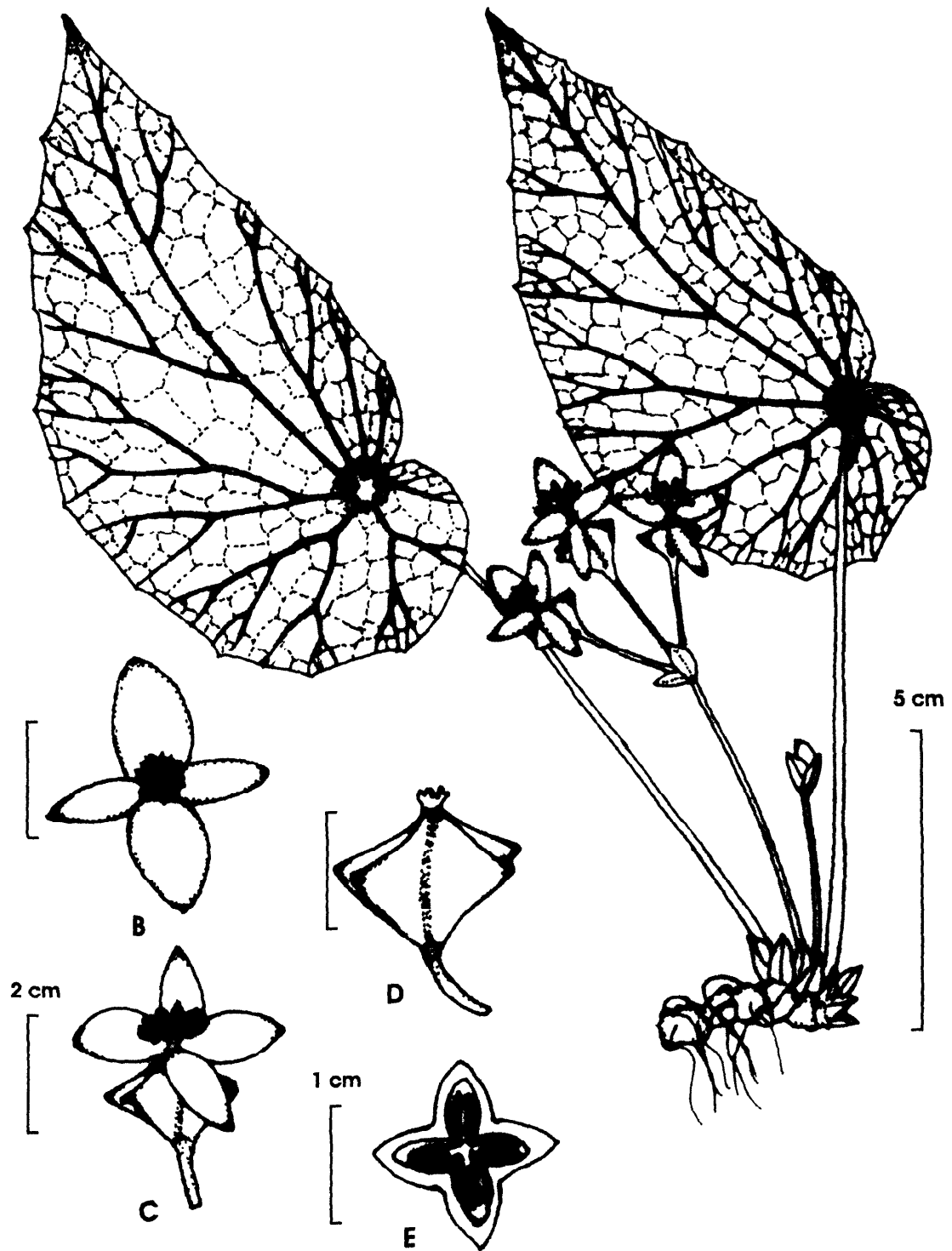


Fig.1. *Begonia burkillii* Dunn : A. Habit; B. Male Flower; C. Female Flower; D. Fruit; E. T.S. of Ovary.

rose or white, glabrous; petals 2, lanceolate, 2.8 – 3 × 1.5 – 1.7 cm; ovary 4-celled, 2-horned, pubescent; placentation axile; placentae bifid; styles 4, joined half way up and divided and contorted at the apex, 8 – 8.2 mm long; stigma 2-cleft, lunate, persistent. Fruit rhomboid, 1.5 – 2.2 × 1 – 1.5 cm, 4-celled, 4-horned, horns sometimes fused to appear 2 or 3-horned, non dehiscent; fruiting pedicels erect, 4.5 – 7 cm. Seeds ellipsoid, brown.

*Fl. & Fr.*: January – April.

*Specimens examined*: Arunachal Pradesh, Abor hills, Jauamukh, 7.1.1992, *Burkill* 37706, 36121, 36315, 36910, 37121, 37139, 37375, 37455, 37706, 37121 (CAL) (syntypes); Changlang, Namdapha Biosphere Reserve, Anamica falls, 30.11.2004, *Amad Uddin* 107934 (ASSAM).

#### ACKNOWLEDGEMENTS

The authors are grateful to Dr. M. Sanjappa, Director, Botanical Survey of India, Kolkata and Dr. T.M. Hynniewata, Joint Director, Botanical Survey of India, Eastern Circle, Shillong for providing facilities. Thanks are also due to Mr. Mahendiran, Department of Zoology, Delhi University for sending some important references.

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#### बेगोनिया पर टिप्पणी : अरुणाचल प्रदेश, भारत से बेगोनिया बर्किली का पुनरावेषण

अमादुद्दीन, एस फूकन एवं एस.के. बड़ठाकुर

96 वर्षों के बाद अपने प्ररूप अंचल के निकट नामदफा जैवमंडल रिजर्व, अरुणाचल प्रदेश, भारत से बेगोनिया बर्किली (बेगोनिया कुल) का पुनरावेषण हुआ है। पूर्व प्राप्त आंकड़ों के बाद सटीक वर्णन किया गया है। भारत से अभिलेखित जाति के कृत्रिम संक्षिप्त विवरण एवं सेक्ट. स्फेनेथेरा पर टिप्पणियों के साथ गहन टैक्सोनामिक पड़ताल एवं चित्र दिये गये हैं।