

A note on large cardamom (*Amomum subulatum* Roxb.) germplasm collection¹

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ABSTRACT

Eleven accessions (SBLC 1-11) of large cardamom (*Amomum subulatum*) collected from Sikkim and Darjeeling district of West Bengal, India were studied for some morphological attributes. SBLC 11 (Barlanga variety) had superior yielding characters like 4 spikes per tiller and bold size of capsules with 45-46 seeds.

Key words: *Amomum subulatum*, germplasm, large cardamom.

Large cardamom (*Amomum subulatum* Roxb.) (Zingiberaceae) commonly known as *bada elachi* is indigenous to moist deciduous semi evergreen forests of sub-Himalayan tracts. It is the most important cash crop of Sikkim from where it has spread to North Eastern States and areas of West Bengal and neighbouring countries like Nepal and Bhutan. The presence of wild species locally known as *churumpa* and the tremendous variability within the cultivated species supports the view of its origin in Sikkim (Subba 1984).

Surveys were conducted for collection of large cardamom germplasm from Mangan, Manul, Sanklong, Phodong, Lingthang, Pasingthang, Higathang, Dikchu, Tong and Naga villages of Sikkim and Sherpa Busty, Lolygam, Upper Lamahatta, Lipchu, Surak and Gotak

villages of Darjeeling district of West Bengal during 1989-90. The collections were planted in the germplasm conservatory of Regional Research Station, Indian Cardamom Research Institute, Spices Board, Pangthang, for further evaluation and some of their morphological attributes are reported here.

The plant is a perennial herb with subterranean rhizomes which gives rise to several leafy shoots and spikes. The bearing plant ranges from 1.8 to 2.5 m in height. The number of leafy shoots varies from 20-30 per clump. The leafy shoots or pseudostems are slender, cylindrical and greenish or reddish depending on the variety. The leaves are green or dark green, glabrous on both surfaces with acuminate apex; more or less uncostate parallel venation, alternately placed, lanceolate and generally 40-50 cm in length and 8-11 cm in width.

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Inflorescence is a spike, arising from the rhizome. Flowers are zygomorphic, hermaphrodite, yellow to bright yellow and cross pollinated by bees. The fruit is globose, trilobulate capsule and dark pink or reddish. Colour of the dried capsules varies from dark pink to dark brown depending upon drying procedures. The number of capsules per panicle ranges between 10-12. The capsules contains several aromatic seeds in each cell. The seeds in the ripe capsules are dark brown

to black and are embedded within a sugary mucilaginous coat.

Among the 11 collections, number of tillers was maximum in SBLC 8(110) followed by SBLC 2(108) of Ramsey variety while the minimum was in SBLC 4(16) of Golsey variety (Table1). The number of productive spikes per clump was maximum (121) in SBLC 5 (Sawney) and minimum (24) in SBLC 2 (Ramsey). SBLC 9 (Ramsey) had a maximum number of 40 capsules per spike (Fig. 1a)

Table 1. Salient features of germplasm of large cardamom

Collection No.	Locality	Altitude (m)	Variety	No. of mature tillers/clump	No. of immature tillers/clump	No. of productive spikes/clump	No. of non-productive spikes/clump	No. of capsules/spike	No. of seeds/capsule	Ratio of mature tillers: productive spikes
SBLC 1	Phodong	1700	Sawney	89	74	44	82	24	43	0.49
SBLC 2	Sinchit Busty	1400	Ramsey	108	62	24	103	28	32	0.22
SBLC 3	Manul	1350	Ramsey	68	16	58	0	28	46	0.85
SBLC 4	Lingdong	950	Golsey	16	11	35	0	18	63	2.19
SBLC 5	Phodong	1675	Sawney	58	82	121	0	38	39	2.09
SBLC 6	Sherpogam	1700	Ramsey	20	20	57	0	17	26	2.85
SBLC 7	Lolygam	1500	Sawney	45	27	88	0	28	33	1.96
SBLC 8	Tong	1500	Ramsey	110	88	94	66	11	23	0.86
SBLC 9	Naga	1400	Ramsey	37	65	96	18	40	24	2.60
SBLC 10	Gotak	1500	Barlanga	23	30	83	0	23	48	3.60
SBLC 11	Gotak	1600	Barlanga	42	54	89	0	25	56	2.12
Range				16-110	11-88	24-121	0-103	11-40	23-63	0.22-3.60
CV (%)				58	56	40	153	32	32	0.56

SBLC = Spices Board Large Cardamom

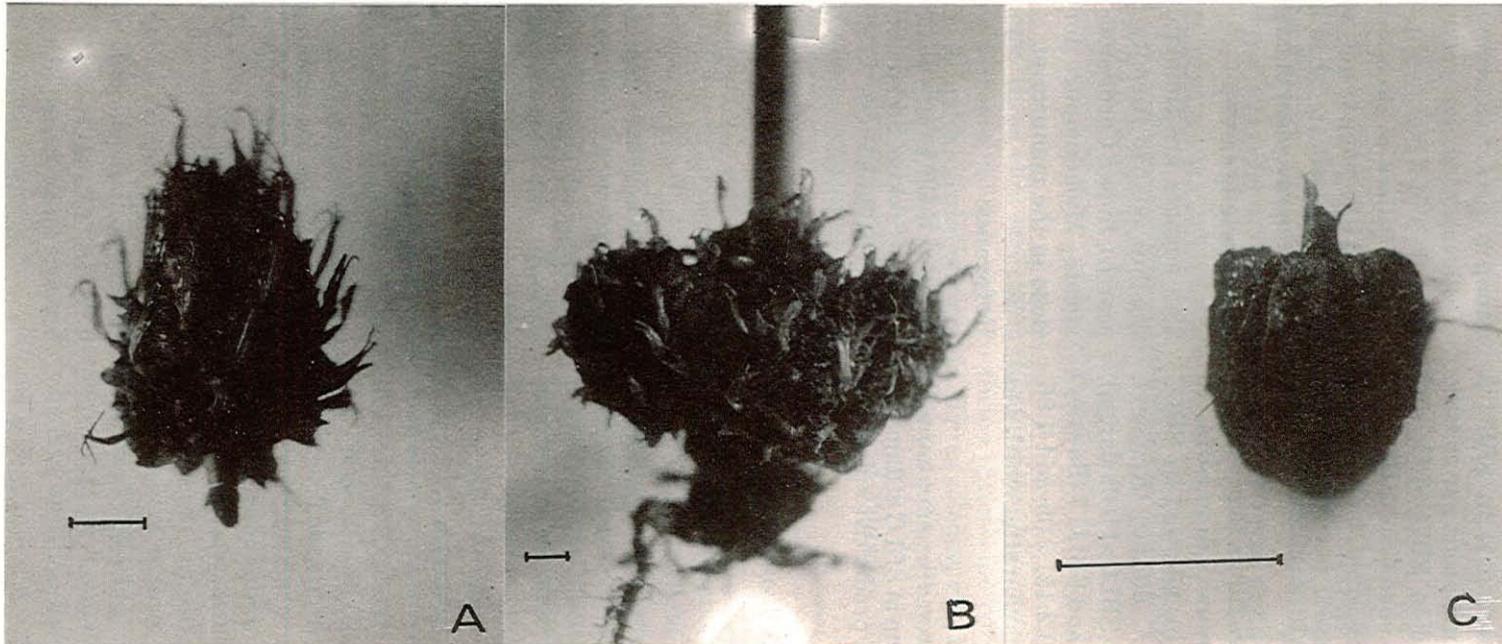


Fig. 1. Collections of large cardamom (Bar = 3 cm)

a. Spike of collection SBLC 9 b. Productive tiller of collection SBLC 10 c. Capsule of collection SBLC 11

while it was lowest (11) in SBLC 8 (Ramsey). Maximum seeds per capsule (63) was observed in SBLC 4(Golsey) followed by 56 seeds in SBLC 11 (Barlanga) (Fig 1c), while the minimum (23 seeds per capsule) was recorded in SBLC 8 (Ramsey).

The ratio of mature tillers to productive spikes was maximum (3.6) in SBLC 10 (Barlanga) (Fig 1b), followed by SBLC 6(2.85) and SBLC 9(2.60) (Ramsey). SBLC 4(Golsey); SBLC 11(Barlanga); SBLC 5(Sawney) and SBLC 7 (Sawney) had ratios of 2.19,2.12, 2.09 and 1.96, respectively for this character which was considerably high.

Promising characters like maximum of 198 tillers per clump in SBLC 8(Ramsey), a maximum of 121 productive spikes per

clump in SBLC 5 (Sawney), a maximum of 40 capsules per spike in SBLC 4 (Glosey) and a maximum ratio of 3.6 of mature tillers to productive spikes in SBLC 11(Barlanga) indicated that the germplasm collected has a vast potential for improvement of large cardamom.

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Reference

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