

Short Communication

BUD MUTANT IN *SACCHARUM OFFICINARUM* L. CLONE 51 NG 131

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Saccharum officinarum L., the 'noble' sugarcane, has clones with varying internode shape and rind colour. The internode shape may be cylindrical, tumescent, bobbin, conoidal, obconoidal or concave-convex and the rind colour may be with different intensities of green, yellow and purple [1]. Longitudinal colour stripes are also present on the rind in certain clones of *S. officinarum* which occasionally revert to self coloured as bud mutations [2].

The *S. officinarum* clone 51 NG 131, originally collected from New Guinea in 1951, is characterized with extremely tumescent internodes giving the appearance of beads placed one above the other. The cane rind colour is greenish yellow with purple longitudinal stripes. In this clone being maintained in the world collection of sugarcane germplasm at Sugarcane Breeding Institute Research Centre, Cannanore, a cane with top most portion having slightly conoidal internodes and without purple stripes on rind was observed in September-October 1995. In between the normal tumescent and conoidal internodes there were five internodes with intermediate shape and with decreasing number of purple stripes on the rind. On clonal propagation, the buds at the region of the conoidal internode and greenish yellow rind devoid of any purple stripes gave rise to plants with the same characteristics.

The plant height of the normal 51 NG 131 and its mutated conoidal internode type (Table 1) was recorded at 240 days after planting from the ground level to the topmost visible dewlap and the other data were from 10 internodes from above ground, from five canes each. The change in shape of the internodes from tumescent to conoidal resulted in increase in internode length and cane length.

In the genus *Saccharum* longitudinal colour stripes on the rind is seen in many *S. officinarum* clones. Except a *S. edule* clone 57 NG 234 which had a bud mutant with purple-green stripes on the canes along with stripes on leaves and leaf sheaths [3], no *S. robustum*, *S. edule*, *S. barberi*, *S. sinense* and *S. spontaneum* clones in the world collection had colour stripes on the rind of cane. Many of the anthocyanin genes in plants have transposable elements acting on them giving rise to colour

Table 1. Mean cane height, internode length, girth of internode and girth of node of tumescent and conoidal types of *S. officinarum* clone 51 NG 131

Character	Tumescent	Conoidal
1. Plant height (cm)	193.75 (14.57)	234.60 (13.35)
2. Internode length (cm)	9.68 (0.63)	13.42 (0.62)
3. Internode girth (cm)	9.85 (0.29)	6.88 (0.28)
4. Node girth (cm)	7.63 (0.21)	6.79 (0.16)

Figures in parenthesis is standard deviation

variegations on different plant parts [4]. The colour stripes on the rind of *S. officinarum* also may be due to transposable elements affecting the expression of anthocyanin genes.

There are many *S. officinarum* clones which have tumescent internodes [5] and the tumescent internode character is seen only in *S. officinarum* in the genus *Saccharum*.

The bud mutation or somatic reversion of two characters specific to *S. officinarum* such as striped rind and tumescent internode, in association, observed in the clone 51 NG 131, is important from the evolutionary point of view and detailed studies are warranted. It is proposed that the anthocyanin gene, which may be modified due to transposable element and resulting in stripes on the rind, is linked to the gene controlling the internode shape in *S. officinarum*.

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