# Short Communications

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## Comparative field performance of micropropagated plants of cardamom (*Elettaria cardamomum*)

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In cardamom [*Elettaria cardamomum* (L.) Maton] vegetative propagation through suckers is slow and through seeds it results in segregation and non-uniformity in the population. However, *in-vitro* methods of propagating plants using buds is faster than the conventional method (of separating suckers from the mother plant and planting in the field). Although there are reports of micropropagating cardamom through multiple shoot formation from vegetative buds (Nadgauda *et al.* 1983), immature panicles (Kumar *et al.* 1985) and through callus (Srinivasa Rao *et al.* 1982), no reports are available about the field performance of tissue-cultured plants.

Young vegetative buds after sterilization with 0.1–0.2% mercuric chloride were multiplied on Murashige and Skoog's basal medium (Murashighe and Skoog 1962), containing coconut water 20%, naphthalene acetic acid (NAA) 0.5 mg/litre, indole butyric acid (IBA) 0.2 mg/litre, 6-benzyl amino purine 1.0 mg/litre, kinetin 0.2 mg/litre and agar 6 g/litre. The plantlets developed after 6 subcultures at an interval of 2 months were rooted in White's basal medium containing NAA 0.5 mg/litre and then hardened in soil + vermiculite (1 : 1) mixture.

To study the variability and field performance of tissue-cultured plants, 2 field trials were laid out during 1987 in completely randomized design at Mercara. Tissue-cultured plants, suckers and seedlings were taken. Trial 1 was conducted on variety 'Clone 37' (number of plants/plot 12, number of replications 8, spacing 2 m x 1 m), and Trial 2 on 'Mudigere 1' (number of plants/plot 9, number of replications 7, spacing 2 m x 1 m). Growth parameters and yield/plant were recorded 3 years after growth. Leaf area was estimated using the equation $A = -6.61 + 0.70\ Y$, where A, leaf area; and Y, maximum leaf length x maximum leaf breadth (Korikanthimath and Subbarao 1983). Plot means were calculated and used for computing the critical difference (at $P = 0.05$).

In Trial 1 tillers/plant were nonsignificantly different among the tissue-cultured plants (22.70), suckers (20.80) and seedlings (19.30). The yield (wet weight/plant) was also found non-significantly different among the tissue-cultured plants (1.06 kg), suckers (0.78 kg) and seedlings (0.91 kg). The same trend was observed for other growth parameters, viz height of the tallest tiller, panicles/plant and capsules/plant. However, yielding tillers/

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plant were significant among tissue-cultured plants (15.90), suckers (12.10) and seedlings (11.90) (CD at P = 0.05: 1.27). Total leaf area was also significantly different among all the 3 treatments.

In Trial 2 tillers/plant did not show significant difference among tissue-cultured plants (19.50), suckers (15.30) and seedlings (16.90). The yield (wet weight/plant) was also non-significantly different among tissue-cultured plants (0.66 kg), suckers (0.59 kg) and seedlings (0.50 kg). The height of the tallest tiller, panicles/plant and capsules/plant also did not show significant differences among all the 3 treatments. However, the yielding tillers/plant showed significant differences among tissue-cultured plants (15.9), suckers (10.60) and seedlings (10.80) (CD at P = 0.05: 3.0). The tissue-cultured plants (4.34 $m^2$) produced more leaf area/plant than the suckers (2.58 $m^2$) and seedlings (3.02 $m^2$).

Pattanshetti and Sulikeri (1981) reported the superiority of clonal progenies (suckers) to the seedlings of some high-yielding clones of cardamom. Although they mentioned that the coefficient of variability between seedling progenies for the mean clump-wise yield/year was 26.46% compared with that of clonal progenies was 36.54%, the average yield of seedling progenies was 178.43 kg/ha compared with that of suckers of 293.94 kg/ha. But others (RRS, UAS, Mudigere 1989), did not find significant differences for tillers/plant, panicles/plant, yield/plant and the hieght of the tallest tiller between the clonal and seedling progenies of a high-yielding clone 'Mudigere 1'. Our results support the latter finding. The absence of significant differences among most of the growth parameters may be attributed to the narrow genetic variability or high degree of homozygosity in the cultivated types of cardamom. Though the tissue-cultured plants, suckers and seedlings showed significant differences in some of the vegetative characters, they did not do so in yield.

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