

B-20: Studies on floral biology, pollination and fruit set in cardamom [*Elettaria cardamomum* (Maton) selected for low elevation adaptability

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Seven cardamom [*Elettaria cardamomum* (Maton)] selections among which 4 having low elevation adaptability (EC1/100), EC1/101, EC1/102 and EC2/400MT) were evaluated for pollination and fruit setting. Although the growth of erect panicle type (Mysore-EC1/700) cardamom is satisfactory, fruit set is very poor in low elevation. Therefore the study was conducted to determine the existence of differences in floral biology, pollination and fruit set in relation to low elevation adaptability.

Floral morphology of all tested selections were similar. Length of corolla tube and calyx tube was 2.00 cm. The labellum length and width were 2.24 cm and 1.43 cm respectively. Anthesis of flowers commenced from 0400h. and reached 90% at 0530h. Peak anther dehiscence was observed during 0800 to 0900 h. The stigma remains receptive for about 10 h and the peak receptivity was observed between 0800-1000 h. Pollen grains were fine, sticky, white in colour and present in abundance. Pollen grains are observed as round or globular in clusters

and with the diameter of 0.035-0.044 mm in all the selections. Both cotton blue and aceto carmine stains produce between 90-93% of selections EC1/100, EC1/101, EC1/102 and between 72-85% in EC2/402KN, EC2/403MT and EC1/700 selections.

A single flower contained a nectar volume of 0.0067ml with a concentration of 38.5% of sucrose and no significant difference in nectar volume was found among the cultivars. The average ovules per flower and seeds per capsule are 19 and 13 respectively and varied among cultivars. More than 90% conversion of ovules into seeds are observed in EC1/102 and EC1/101 whereas above 80% seed conversion ratio was expressed by EC1/100 and EC2/400MT, less than 80% by the rest inclosing Mysore type.