

A Preliminary Note on the Development of the Female Gametophyte in *Costus speciosus* L.

IN a recent article Maheshwari¹ has reviewed the work on the embryology of angiosperms that has been done in India and suggested a re-investigation of certain genera including *Costus*. Previous investigation on this line on *Costus speciosus* L. was carried out by Humphrey² who suggested a "Lilium type" of embryo-sac development.

The results of our investigation show that an archesporial cell is developed in the hypodermal layer of the nucellus, it cuts off a parietal cell and then functions as the megaspore mother-cell. The megaspore mother-cell increases in size before division. In the stages of the heterotypic prophase the nucleus, in some preparations, is observed to lie at the lower end of the protoplast (Fig. 1). The heterotypic spindle, however,

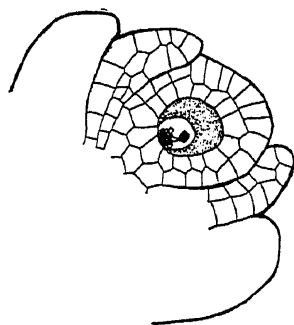


Fig. 1. $\times 375$.

is oriented centrally and is quite sharp. A cell plate is noted on the completion of the reduction division. The homotypic spindles are arranged somewhat obliquely and as a result four obliquely-oriented tetrad of macrospores is formed (Fig. 2). The chalazal

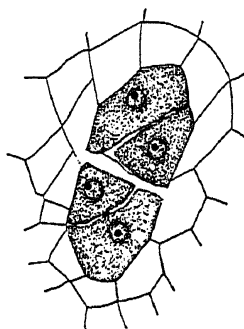


Fig. 2. $\times 250$.

macrospore alone functions while the rest degenerate. The mature embryo-sac is eight-nucleate and is of the normal angiospermic type. The antipodals later degenerate.

The development of the embryo and the endosperm is being worked out and some interesting stages in the development of the

endosperm have been obtained. A detailed account of the complete investigation will be published elsewhere in due course.

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¹ Maheshwari, P., *Curr. Sci.*, 1935, **3**, 599-605.

² Humphrey, J. E., *Ann. Bot.*, 1896, **32**, 1-40.

On an Abnormal Flower of *Convolvulus pluricaulis* Chois.

ONE of the flowers of *Convolvulus pluricaulis* Chois. (= *Evolvulus pilosus* Roxb.)¹ examined during a practical class showed an apparently fertile anther attached to one of the two stigmatic branches of the style (Fig. 1).



Fig. 1. $\times 4$.

The anther is practically sessile and of the same shape and size as the other anthers of the flower. Though it had dehisced like the others, there were just two pollen grains inside and these were exactly like the normal pollen grains; the anther was obviously fertile. Serial sections of the specimen showed no suggestive differences in the internal structures of the two stigmatic branches.

Parts of the pistil being substituted by or transformed into anthers are on record and described under "Staminody of the Pistil".² Anthers surmounting the pistil have also been noted in a few plants.³ Worsdell⁴ records the case of an abnormal flower of *Linaria vulgaris* where, in addition to other