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## FLORAL BIOLOGY OF GINGER, *ZINGBER OFFICINALE* R.

Ginger belongs to the family Zingiberaceae. It flowers rarely, only under certain conditions. The inflorescence is a scape and is produced on a special scale leaf bearing shoot springing from the rhizome or is terminal. Terminal inflorescence is, however, far less in number ranging up to a maximum of 20 per cent. The fertile bract is very prominent, and subtends a bisexual flower. The flower are purple in colour. The perianth consists of sepals and petals. Androecium consists of stamens of which the outer 3 are reduced to staminoids. The inner lateral stamens are united and showy to form a deep purple coloured labellum. The posterior stamen of the inner whorl is the only fertile stamen which is enclosed by the labellum. The filament is flat and short with two prominent anther lobes. The style passes through the groove formed by the anther lobes and ends in a capitate stigma.

There is no published data on the floral biology of ginger. Parameswaran (1973) studied the floral biology of cardamom which also belongs to the family zingiberaceae. The present investigation was taken up in the College of Agriculture, Vellayani during the year 1977 to study the floral biology of ginger. Ginger flowered profusely during the year under investigation. Flower bud development was studied by selecting at random 30 undeveloped buds and observing them up to full bloom. Fifty flower buds were selected on the days previous to their blooming for studying anthesis and anther dehiscence. Pollen morphology and pollen fertility were studied using acetocarmine method.

The studies on flower bud development revealed that it took 20—25 days from the bud initiation to full bloom. A period of 23—28 days was required to complete blooming in an inflorescence. Blooming takes place in an acropetal succession. Anthesis was observed to take place between 1.30 P. M. to 3.30 P. M. under Vellayani conditions. Anther dehiscence almost coincided with the flower opening or followed it immediately. The studies on stigma receptivity could not be followed up since hand pollination failed to set seeds. However observation under hand lens indicated that stigma was receptive at the time of anther dehiscence. Flower fades and falls on the next day of blooming.

Pollen grains are spherical, size ranging from 90 to 100 $\mu$ , the average size being 95.494 $\mu$ . Pollen sterility ranged up to an average of 76 per cent. Attempts to germinate pollen in dextrose agar medium did not give encouraging results. Only 2.5 per cent did germinate. Probably the high percentage of sterility may be one of the reasons for poor germination. The causes for hindrance to fertilization have to be further investigated.

## സംഗ്രഹം

വെള്ളായണി കാർഷിക കോളേജിൽ ഇഞ്ചിപ്പെട്ടിയുടെ ഫ്ലോറൽ ബൈയോളജി പഠിക്കുവാൻ നടത്തിയ നിരീക്ഷണങ്ങളിൽ നിന്നും പൂമൊട്ടിന്റെ ഉൽപ്പത്തി മുതൽ പൂ വിരിയുന്നതുവരെ 20 മുതൽ 25 ദിവസം വരെ വേണ്ടിവന്നു എന്ന് തെളിഞ്ഞിട്ടുണ്ട്. ഉച്ചയ്ക്ക് 1.30 മുതൽ 3.30 വരെയുള്ള സമയത്ത് പൂ വിരിയുന്നു എന്ന് ഉടനെ തന്നെ പരാഗകോശം പൊട്ടി പരാഗം പുറത്തു വരുന്നതും കണ്ടിട്ടുണ്ട്. പരാഗം ഗോളരൂപത്തിലുള്ളതും ഏകദേശം 90 മുതൽ 100 വരെ വലിപ്പം ഉള്ളതും ആണെന്ന് മനസ്സിലാക്കി. പരാഗത്തിന്റെ ഖണ്ഡനം 76% ആയിരുന്നു. എന്നാൽ ഏകദേശം 2.5 ശതമാനത്തോളം മാത്രമേ അകാർഡെക്ട്രോസം ലായനിയിൽ മുളച്ചുള്ളൂ.

## REFERENCES

- Parameswar, N. S. 1973. *Mysore J. of Agril. Science* 7, 2 205—213.  
 Purseglove, J. W. 1972. *Tropical Crops - Monocotyledons.*

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