

ON THE OCCURRENCE OF VIVIPARY IN PAPAYA PLANT

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Vivipary is a special type of seed germination where the seed gets germinated while still inside the fruit being attached with the parent plant. It is seen in plants growing near salt lakes and sea coasts, where the soil remains muddy and salty which does not favour seed germination in the ground under the parent tree. In vivipary the embryo emerges out of the fruit with a massive radical pointing downwards. Due to increasing weight the seedling gets detached from the parent plant, drops down and establishes itself as a new plant in the muddy and saline soil below. Examples are *Rhizophora*, *Ceriops*, *Avicenia* and *Heritiera* (sundari) in the Sunderban area of West Bengal. In Odisha in Bhitarkanika area also some of these plants are seen.

Papaya, botanically known as *Carica papaya* L. (Family Caricaceae) exhibits "hypogeal" type of seed germination but viviparous type of seed germination has been recently observed by the present authors and is being reported here.

Classification wise it is an Angiosperm and a Dicotyledon plant. However, there are two orders named above the family level. Engler & Prantl as well as John Hutchinson have placed it in the order Cucurbitales, whereas Bentham & Hooker included it under the order Passiflorales (Haines, 1924; Mishra et al., 2006, 2007).

Papaya is vernacularly known as Papaw (English), Papita (Hindi), and Amrutabhanda (Odia). It is a small (tall, natural and dwarf hybrid varieties are also cultivated) tree with a crown of leaves and hollow cylindrical trunk. The root is a tap root with primary, secondary and tertiary roots. Milky latex is unique, from which Papain a digestive substance is extracted, which is used in cooking meat for softening or tendering. Leaves are unique which are simple long petiolate with palmate venation. Flowers are greenish-white or white. Sepals and petals alternate and pentamerous. Female flowers large, sub-solitary or in a very short cymose. Male flowers in panicle (compound Raceme). Bisexual flowers are also being noticed. Thus, three distinct type of flowers, such as female, male and bisexual may be seen in the nature. Plants are dioecious and can be made monoecious by

converting a male plant into a female, by inserting a thick stick at the basal region of the tree trunk. This phenomena of fertilization is controlled by hormonal balance in translocation from base to apex. Fruit is a large berry and unilocular with a number of small blackish wrinkled seeds with an outer sappy and inner hard testa, when ripe, and white when green. The outer skin of the fruit is not edible whether raw or ripe. The inner mesocarp and endocarp are edible and very tasty. Vitamin C (ascorbic acid) is present in plenty in the ripen fruits which are good for health. Young green fruits are used as green vegetable, which is used in Odia dish daalmaa taken alongwith rice or chapatti.

Last summer, on 27 May, 2016, on plucking a ripe Papaya (yellow colour rind) fruit from kitchen garden and on cutting it longitudinally, some seeds were found inside the fruit, in a germinating condition with distinct root generating organ (radical) and shoot generating organ (plumule) clearly visible to the eye. The plant is not a hybrid (dwarf) plant, but a normal tree (ca 20 meter in height and 60 cm in girth at the basal region). Photographs were taken of different views.

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