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Development of Male Flower:

In very young cones, certain cells below each collar become meristematic. They divide repeatedly and form a small hump-like outgrowth. Certain cells on the upper side of this annular outgrowth start to differentiate into the initials of the ovules. They develop into abortive ovules which form the uppermost ring. The cells of the lower side of this annular outgrowth form the primordium of male flower.

A central cushion of cells develops by the repeated divisions in the male flower primordium. This cushion gets surrounded by a circular sheath called perianth. The sheath-like perianth encloses the central cushion-like mass only partially. With the development of a depression or notch in the central mass two lobes differentiate and later on develop into two anther lobes.

With the help of many divisions the basal portion of this central mass of cells

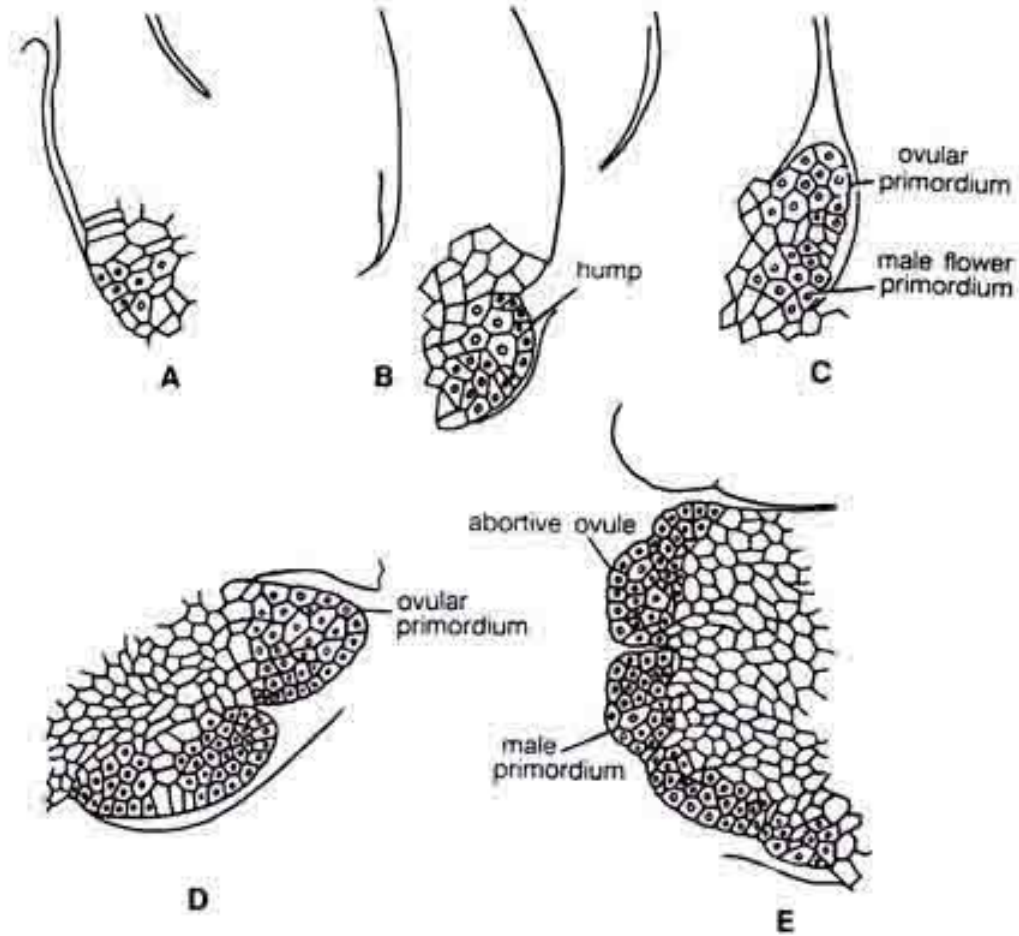


Fig. *Gnetum ula*. Development of male flower (modified after Vasil, 1959).

starts to differentiate into a stalk. This stalk elongates and pushes the anther lobes towards the outer side.

Each anther lobe remains surrounded by an epidermal layer and a few wall layers which enclose a microsporangium. The innermost wall layer enclosing the sporogenous tissue is known as tapetum.

The sporogenous cells become loose, contract, round up and change into the spore mother cells. In the process of microspore formation the tapetum and two wall layers are used for the developing microspores. The spore mother cells undergo meiosis and ultimately the spore tetrads are formed.

The characteristic radial thickenings develop in the epidermal cells. They help in the dehiscence of microsporangium. The microspores are ornamented.

