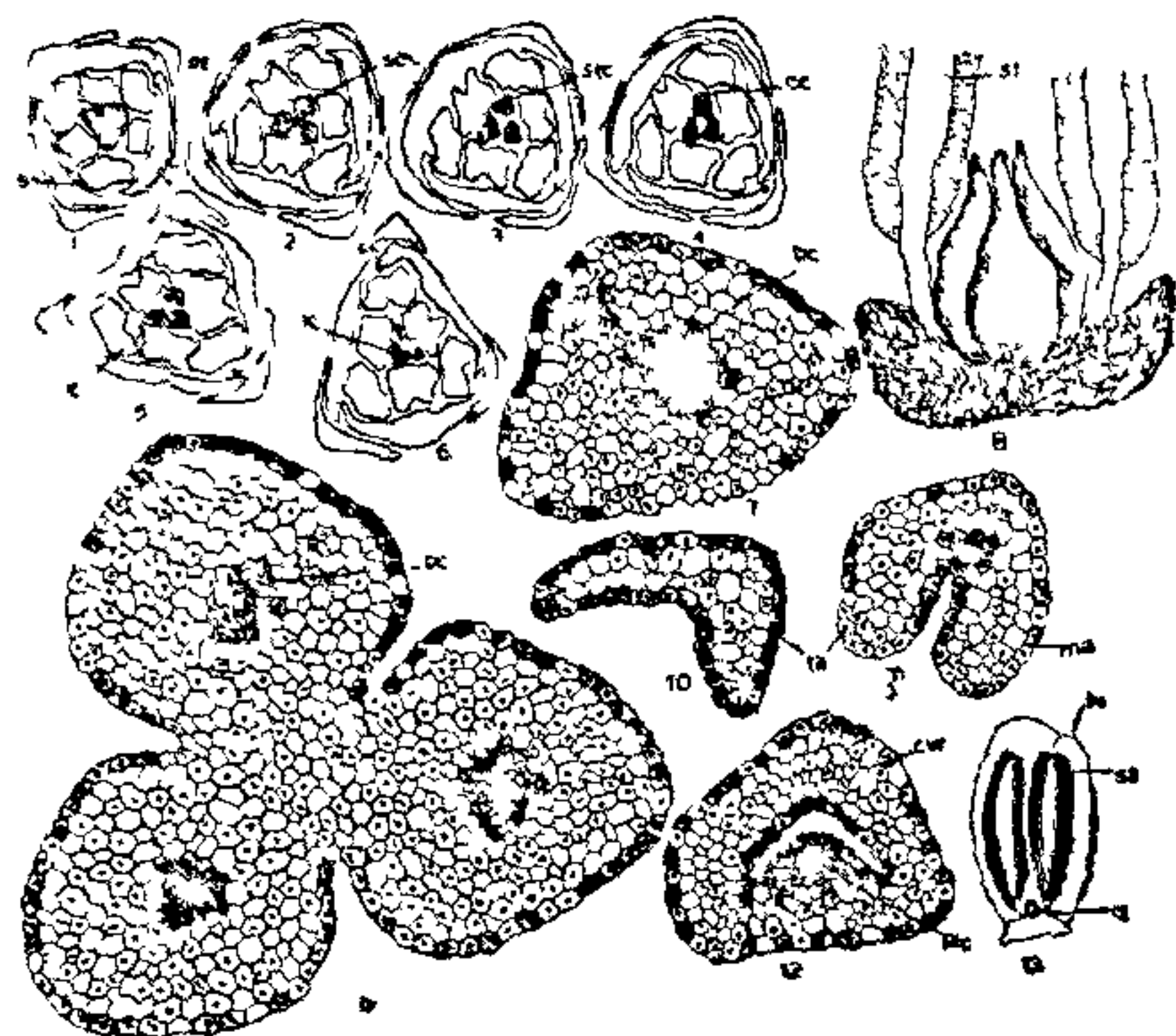


THE PISTILLODE OF *PHOENIX LOUREIRII* KUNTH.

The pistillode is considered to be a vestige of the carpel in the male flower. There are few developmental studies on pistillodes even though enough information is available on the structure and development of the carpel in angiosperms. The male flowers of *Phoenix loureirii* were studied with a view to understanding the developmental features of the floral parts. This study revealed very important features of pistillode development.



FIGS. 1-13. *Phoenix loureirii* Kunth. Figs. 1-6. Cross sections of male flowers showing the pistillode. Figs. 7, 9, 10, 11 and 12. Enlarged views of the carpel-like components of the pistillode. Fig. 8. Magnified view of the pistillode composed of three carpel-like components. Fig. 13. Flower bud in longitudinal section showing the relative position of the pistillode.

(cc—lower part of the carpel-like component of the pistillode showing a single chamber; cl—carpel-like component of the pistillode; et—enlarged torus; cw—wall of the carpel-like component of the pistillode; la—laminal part; lc—laminal part of the carpel-like component of the pistillode; ma—marginal meristem; pc—procambium; pe—perianth; plc—placental region; sc—separating carpel-like component; st—stamen; stc—separated carpel-like component.)

(Figs. 1-6. $\times 60$; Figs. 7, 9, 10, 11 and 12. $\times 870$; Figs. 8 and 13. Diagrammatic)

The pistillode of *P. loureirii* measures 500–700 μm in the fully opened flowers. Three carpel-like structures occur in all male flowers and compose the pistillode. The components are slightly united at the base (Figs. 8, 9 and 13) and become free above with drawn-out ends. The early development of the carpel-like components was remarkably similar to that of the conduplicate carpel of the dicotyledons (Bailey and Swamy¹). As in the free conduplicate carpels each component of the pistillode arises as a separate

entity on the enlarged torus. Soon after origin, the primordia assume a roughly triangular outline, which is yet another similarity with conduplicate carpels (Periasamy and Swamy⁵). From the corners of the triangular structure, marginal meristems originate and the early lamina grows to a little extent in a conduplicate fashion (Fig. 11). The lower part of the carpel-like structure exhibits a closed wall and a placenta-like structure (Figs. 1, 2 and 13). Above this level these structures open out (Figs. 5, 6, 10 and 11). The upper portion also shows free laminal margins (Figs. 10 and 11) which rather tend to flare apart. At the lower level, the carpel-like structures fuse with the enlarged thalamus (Figs. 1, 2 and 9). Apart from a single mass of procambial cells developing at the base of each carpel-like structure (Fig. 7) there was no further vascular differentiation. General appearance of the pistillode components was closely resembling that of typical open carpels reported by earlier workers (Bailey and Swamy¹; Periasamy and Swamy⁵; Padmanabhan⁴). This suggests that the pistillode is nothing but a carpellate structure whose further development is arrested. In *Cocos*, in the centre of each male flower, there is a rudimentary or abortive pistil which divides at its apex into three teeth, each bearing a nectar gland, the nectar of which attracts ants, bees and other insects. Thus, the pistillode in *Cocos* appears to serve the purpose of attracting insects for pollination (Menon and Pandalai³). No such functions could be attributed to the pistillode of *P. loureirii*. Furthermore, in the male flower of *Cocos*, according to Juliano and Quisumbing² the last floral organ to develop is the rudimentary or abortive tricarpedal pistil with style and stigma distinctly separate. A similar situation obtains in *P. loureirii* also. The similarity of developmental stages of the pistillode components in *P. loureirii* and that of conduplicate carpels strengthens the view that pistillodes are carpellary in nature.

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