THE BILOCULAR OVARY OF *KIGELIA*

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ABSTRACT

Anatomical investigations carried out on the ovaries of two species of *Kigelia* DC. have shown them to be distinctly bilocular with numerous ovules on axile placentae and not unilocular with parietal placentation as hitherto known.

INTRODUCTION

The ovary of *Kigelia* DC. (Bignoniaceae) has been described as one-celled (unilocular) with numerous ovules borne over the two parietal placentae by several workers (THONNER, 1915; RENDLE, 1938; HUTCHINSON & DALZIEL, 1963; ENGLER, 1964; LAWRENCE, 1966; BURGER, 1967; BAILEY, 1968; HUTCHINSON, 1969). The author, while at the University of Cape Coast, Ghana (W. Africa), in a joint communication (YANNEY EWUSIE, SHARMA & SIEBER, 1974) reported the ovary of *Kigelia africana* (Lam.) Benth. to be distinctly two-celled (bilocular). These observations were based on anatomical investigations carried out on the materials collected from different regions of Ghana. It was also shown that the numerous ovules are borne on each of the two placentae in each locule and the placentation is axile, not parietal as described by others.

OBSERVATIONS

Similar studies were extended to *K. pinnata*—DC. also a native of Tropical Africa but is grown commonly in the gardens and as an avenue tree in India. It is a medium-sized spreading tree whose flowering starts in March/April and continues until July/August. Serial microtome transverse sections of the ovary were cut at different stages of its development starting from the very young ovaries in the unopened flower buds to the mature ovaries in the open flowers collected from a tree in the departmental gardens. Results obtained in this species (Pl. 1) also are basically in conformity with those that have been already described for *K. africana*. Some minor differences have, however, been noted viz., (i) the presence of a thin septum in the youngest stage of the ovary that makes it bilocular (Pl. 1, Fig. A) and (ii) the septum gradually emerges as a tribulbous structure (Pl. 1, Fig. D); the two outer bulbs develop into placentae bearing numerous ovules in each locule when the central bulge becomes less prominent (Pl. 1, Fig. F).

However, studies of sections of the ovary from dried herbarium specimens of *K. africana* at the University of Cape Coast had revealed them to be unilocular. This apparent unilocular condition develops as a consequence of the breaking apart of the thin central part of the septum between the placentae (*cf.* Fig. 2, E of *K. africana*) and may have been the source of error in the previous studies. Consequently, the two placentae with numerous ovules, apparently in the parietal position, are left within the unilocular

ovary which may even look two-parted as shown by BURGER (1967). A similar condition was also observed in *Stereospermum kunthianum* though the fresh materials in both cases have bilocular ovaries.

Similarly, it would be worthwhile to examine in fresh flowers the ovary structure of the other over a dozen species of *Kigelia* all of which occur in Tropical Africa. Studies on these two species viz., *K. pinnata* and *K. africana* have, however, shown that their ovaries are bilocular (two-celled) with the placentae developing on the septum slightly shifted away from the centre. The occurrence of the thinner central part of the septum is explained by the two carpel-margins meeting in the centre and the placentae, as usual, being situated a little inwards of their extreme outer edge as per morphological interpretation (EAMES, 1961). This is also supported by the presence of the ventral vascular traces (Pl. 1, Fig. C).

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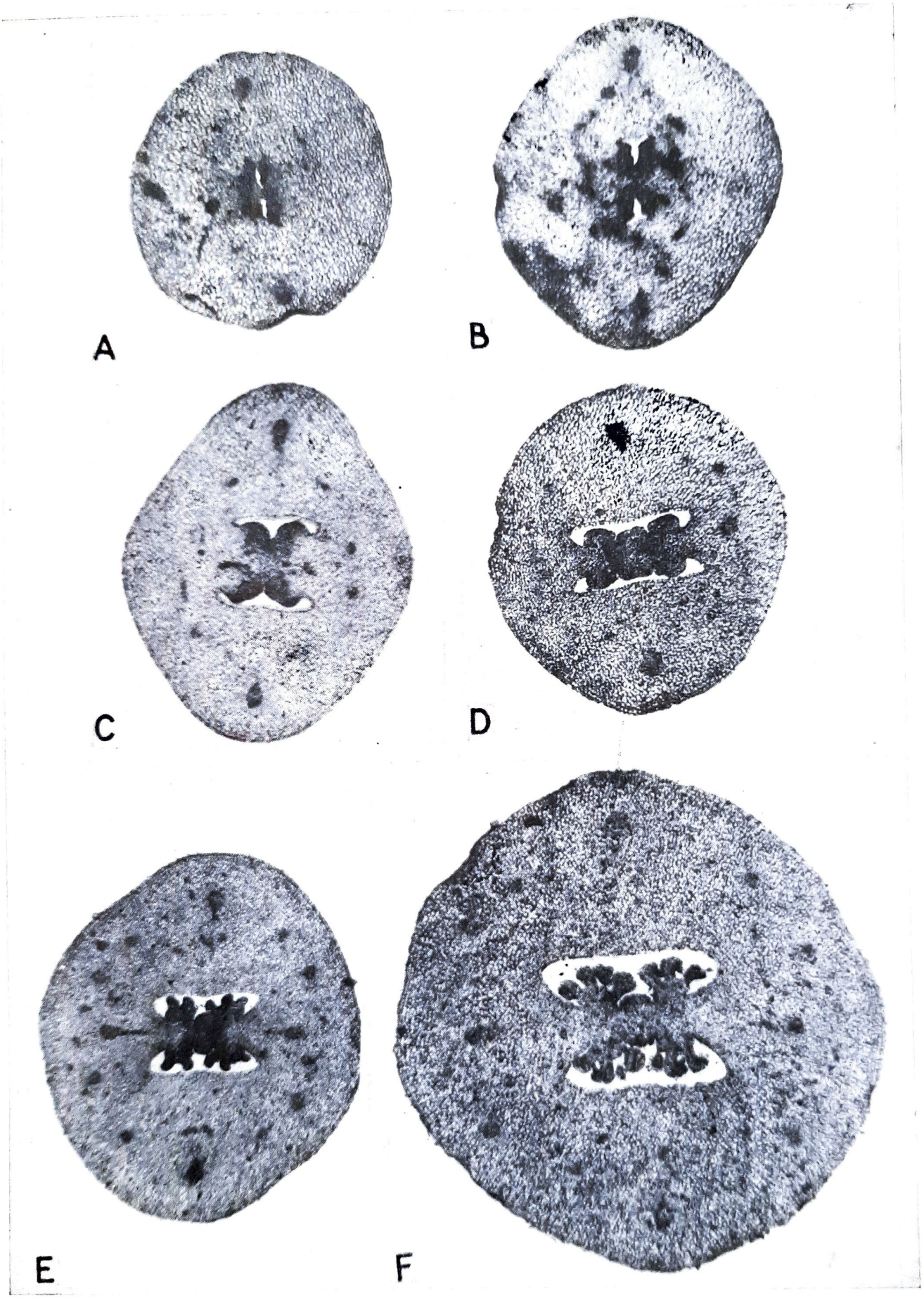
EXPLANATION OF PLATE 1

Photomicrographs of microtomed transverse sections of the youngest (A, B and C × 35), young (D × 35 and E × 30) and mature (F × 30) ovaries of *Kigelia pinnata*.


A
B
C
D
E
F