J. Phytol. Res. **15** (2) : 233-234, 2002

FORMS OF OVULES IN *KIRGANELIA RETICULATA* [POIRET] BAILLON

ALKA CHATURVEDI
PGTD, Botany, Nagpur University, Nagpur - 440 010, India.

Form of the ovule is one of the important criteria in the classification of Euphorbiaceae. Tribe Phyllantheae is known for occurrence of hemianatropous ovules. Embryological studies in *Kirganelia reticulata* [Tribe Phyllantheae] suggest that form and orientation of the ovule in any plant depends upon, the place of origin and how much space is available for overall growth of the ovule. *Kirganelia reticulata* Baill shows, presence of two type of ovules, anatropous and hemianatropous. It is simply due to differential growth in varying regions of the placenta and overall the space available to the developing ovules in case of their superposed nature.

Keywords : Euphorbiaceae; *Kirganelia reticulata;* ovules.

Ovular characters have been regarded as of significant value within the Euphorbiaceae, since the time Jussieu[1] originally established the distinction between bi ovulate and uniovulate taxa as a diagnostic criterion. Baillon[2] pointed out, ovules of Euphorbiaceae are characterized by their epitropous orientation. Schweigner[3] surveyed the variation in ovular forms in the Euphorbiaceae and found it to be of considerable significance systematically. In the tribe phyllantheae, the ovules are distinctly hemianatropous, instead of anatropous as in great majority of the taxa in the family. Kapil and Bhatnagar[4]. also used the criteria of ovular character while proposing classification of Euphorbiaceae on the basis of embryological characters. Singh[5] has contested the anatropous and hemianatropous types and considered the ovular forms on the basis of their development, as well as on the nature of the vascular strand in the ovules. He admitted that the various forms of ovules may sometimes inter -grade into one another, or the same ovule may undergo various forms during the course of its development.. Bocquet[6] considerecd, campylotropous and amphitropous conditions as modification of basic types ortho and anatropous.

Baillon[2] transferred taxon *Phyllanthus reticulatus* Poiret to the genus *Kirganelia* A. Jussieu, on the basis of number of stamens [5], many locular [5-12] ovary and two superposed ovules per locule. Deshpande[7] worked out the embryology of *Kirganelia reticulata* Baill, and reported pendulous, anatropous ovules with a raphe on the ventral side.

Reinvestigation[8] of the *Kirganelia reticulata* Baill does not conform to the earlier findings. Each locule of multilocular ovary shows presence of two superposed ovules, one ovule is anatropous and other is hemianatropous (Fig. 1). It seems that entire axis of the ovary performs the function of the placenta., Probably it is the upper ovule whose primordia appears first and later during development, the ovular curvature is accompanied by the shifting of the position of its attachment region on the placenta. The placenta below the region of attachment of the ovule grows and the latter is carried higher up so that the ovule finally becomes pendulous. On the other hand the attachment region of the second ovule on the placenta always remains at the lower level as the growth of the placenta occurs mostly above the region. This lower ovule never finds sufficient space to develop any curvature. Hence, the type of the ovule depends upon the place of origin and shifting of the attachment region which is brought about by the active growth in the region of the attachment, as well as in the region below it during the overall growth of the ovary.

Thus the two ovules of a same locule, in spite of having many features in common, such as two integuments, an elongated and

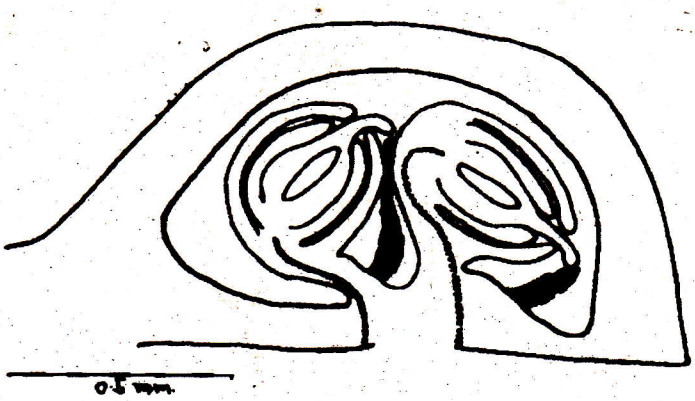

Fig. 1. L. S. Ovary showing two types of ovules in a locule.

curved nucellar beak, show difference in their form and as well as the course of the vascular supply is also quite different. Presence of two types of ovules in *Kirganelia reticulata* Baill. is simply due to differential growth in varying regions of the placenta and overall the space available to the developing ovules in case of their superposed nature.

Acknowledgement

The author is thankful to Dr. P.K. Mukherjee for suggestion and going through the manuscript.

Reference

1. Jussieu A 1824, *De Euphorbiacearum generibus medicisque earumdem viribus tentamen. Paris.*
2. Baillon H 1858, *Etude Generale du Groupe des Euphorbiacees* victor masson Paris.
3. Schweiger J 1905, *Flora* **94** 339
4. Kapil R N and Bhatnagar A K 1994, *Ann. Massouri Bot. Gard* **81** 145
5. Singh R P 1962, *Plant Embryology A Symposium* CSIR New Dehli 124-128.
6. Bucquet G 1959, *Phytomorphology* **9** 222
7. Deshpande PK 1959, *Jour. Bio Sci* **2** 76
8. Chaturvedi A 1998, *Embryology of few taxa of Family Euphorbiaceae* Ph D Thesis. Unpublished Nagpur University Nagpur.