An anomalous megagametophyte of *Dolichos lablab* L.: Further evidence of a criticism of Roy (1933)

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The present paper deals with the anomalies observed in the megagametophyte of *Dolichos lablab* Linn., a member of the tribe Phaseoleae of the Papilionaceae. The ovule is bitegmic, crassinucellate and campylotropous. The eight-nucleate, megagametophyte is monosporic, with the Polygonum type of development. A nine-nucleate anomalous megagametophyte in *D. lablab* was observed by Roy (1933). In his (1933) case as the megagametophyte was not mature, there was neither formation of the egg apparatus nor that of the antipodals. Nine nuclei were distributed at two poles with five at the micropylar end and four at the chalazal end. He (1933) could not decide the fate of the extra nucleus. A nine-nucleate anomalous mature megagametophyte was observed in the present investigation in *D. lablab*, where the fate of the extra nucleus is decided, hence its importance.

In the normal mature megagametophyte, three nuclei from the micropylar quartet organise into the egg apparatus consisting, the egg and two synergids. The cells of the egg apparatus are large. The fourth nucleus from the micropylar quartet forms the upper polar nucleus. The antipodal cells, within the narrow protruding chalazal end of the megagametophyte are arranged in the form of pyramid. The egg and two synergids in which there is no evidence of filiform apparatus, are about the same size. The two synergids of the egg apparatus are more or less hooked. Both the polar nuclei move to the upper half of the megagametophyte and there they do not fuse but lie side by side and most probably remain in this stage till fertilization. This seems to be a characteristic feature of the Papilionaceae. It could be further stated that the region of the megagametophyte in which the polar nuclei become closely associated, and the time of their fusion seems to be of taxonomic significance.

In the nine-nucleate anomalous megagametophyte of *Dolichos lablab*, the micropylar end shows the egg apparatus composed of two synergids and one egg, which lie side by side in the same plane. At the chalazal end three antipodal cells are arranged side by side. In the lower half of the megagametophyte, two nuclei can be seen to be in close proximity. Perhaps they about to fuse, while the third nucleus is beside them. The question arises as to whether these two attached nuclei originate from the chalazal or the micropylar end. However, their position is nearer to the chalazal pole and hence they must have come from that end. The possibility of each of the nucleus having come from each pole can not be ruled out. In such a case the micropylar one would have moved faster than chalazal one, resulting in their fusion in the lower half of the megagametophyte. Now, about the origin and fate of the isolated nucleus. From its position, there appears to be no doubt that it is from the micropylar end. This is supported by the observations of Roy (1933) on *D. lablab*, where five nuclei were observed at the micropylar end in the nine-nucleate anomalous megagametophyte. Now the question arises about its fate. It is a characteristic feature of the Papilionaceae, the polar nuclei remain separate for a long time even as late as fertilization. From this statement it is presumed that the extra nucleus will participate in the formation of the secondary nucleus. Thus the secondary nucleus would be the product of three nuclei. Formation of secondary nucleus by more than two nuclei in the Polygonum type of megagametophyte was observed by the author in *Cyamposis* psoralioides (Salgare, 1973a), *Sesbania aculeate* (Salgare, 1973b), *Canavalia ensiformis* (Salgare, 1975a) and *Sesbania aegyptiaca* (Salgare, 1975b).

One more anomaly worth noting is that in the Papilionaceae, the fusion of the two polar nuclei takes place in the upper half of the megagametophyte. However, in the present anomalous megagametophyte of *Dolichos lablab*, it is just the reverse.

Thus it is further confirmed that it was the failure of Roy (1933) to trace out such an important anomalies in the megagametophyte of *Dolichos lablab*. Thus it is further proved that Roy's (1933) superficial and misleading observations.

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