

ROLE OF EMBRYOLOGY IN TAXONOMY

INTRODUCTION → Embryology has played a significant role in taxonomic considerations. The earlier botanists have indicated the possibility of utilizing embryological data in taxonomy but it was Scharf (1941) who brought prominence to the role of embryology in taxonomy. Since then a large number of workers have done works in this direction —

Embryological characters used in taxonomy Maheshwari (1963) has listed of following features of embryology for taxonomic consideration.

1. Number and arrangement of loculi in anther.
2. Structure and thickening of endothecium.
3. Nature of tapetum.
4. Organization of pollen grains.
5. Development and structure of ovule.
6. Form of nucellus.
7. Origin of sporogenous tissue.
8. Time of wall formation in megasporogenesis.
9. Arrangement of megaspore.
10. Organisation of embryo sac.
11. Fertilization.
12. Type of endosperm and haustoria.
13. Form and organisation of matured embryo.

EXAMPLES → There are several noteworthy examples of the value of embryology in taxonomy.

There was controversy regarding the systematic position of Paeonia. It was included in the family Ranunculaceae but Hutchinson has removed it from Ranunculaceae and placed in a separate family Paeoniaceae. Embryological event support this treatment.

The genus Trapa was placed in the family Onagraceae by Bertham & Hooker. But Engler and Prantl placed it in a separate family. This is supported by the embryological data.

Again Butomus was member of the family Butomaceae but now it have been transferred to the family Alismataceae. The embryological supports this placement.

Similarly, on the basis of embryological studies the systematic position of several genera such as Pigafium, Parnassia and others have been stabilised.

The family Grassulaceae resemble Saxifrageceae in a number of embryological characters. This justify placing of the Grassulaceae in the order Rosales close to the Saxifrageceae. The family Lemnaceae are considered

to have been derived either from the Araceae or from the Helobiales. The embryological studies of Maheshwari (1954, 56, 58) have clearly indicated that Lamnaceae are evolved from the Araceae. Again the families Cyperaceae and Graminae were considered closely associated by earlier taxonomists. But embryological evidence show a close relationship between the Cyperaceae and Juncaceae.