

# HETEROSPORY

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AND

## SEED HABIT

For UG semester — II

Subject Botany

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Heterospory considered to be a pre-requisite to seed formation. In addition to heterospory the seed plant show the following characteristics that have led to the formation of seed.

- (i) Reduction in size of the male gametophyte.
- (ii) Formation of one megaspore within a megasporangium or the nucellus as we call it in the seed plants.
- (iii) The megasporangium is surrounded by an additional protective coat known as integument.
- (iv) The megaspore is never shed

(v) Fertilization and formation of embryo take place in situ.  
 (vi) Histological union between the megaspore and the megasporangium.  
 (vii) In the seed plants the megaspore is never free from the nucellar cells. They have a complete organic fusion which is lacking in Selaginella and all other cryptogams.  
 Selaginella, no doubts, states an example of heterosporous vascular cryptogams, that approach seed habit because of the following important characteristics: —

- (i) It is heterosporous.
- (ii) The megaspore starts germination within the megasporangia.
- (iii) The number of megaspores in *S. rupestris* and *S. monospora* is reduced to one.
- (iv) In *S. rupestris* the megaspore is never shed and fertilization and dev of embryo upto the

formation of rhizophore, stem and cotyledons take place while the megaspore is enclosed within the megasporangium.

After considering the above listed points we can, however, reach a conclusion that the heterosporous vascular cryptogams like Selaginella and Marchantia fail to develop seed because : —

They have no protective st.

(ii) The retention of megaspores permanently within the megasporangium has not become established.

(iii) Histological union between megaspore and Megasporangium is absent.

(iv) After the dev of embryo there is lack of resting period.

From the desk of

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Megasporangium of Selaginella is comparable to the nucellus of pinus and other seed plants. The endosperm in pinus is comparable to the female prothallus of Selaginella. Both have archegonia with eggs contained in their venters. In Selaginella only integuments are absent. The sporangial wall of Selaginella is double layered and can act as a protective layer. As a matter of fact the outer wall of megasporangium in Selaginella becomes thick and sufficiently strong at maturity.