Importance of Heterospory –

> Heterospory expresses sex determination capability of the plant.

> Biological significance of Heterospory is that in heterosporous forms development of gametophyte is endosporic and the nutrion for developing gametophyte is derived from sporophyte.

> Heterospory ensures nutrition for the developing embryo.

Seed Habit –

To evaluate seed habit in vascular cryptogams, it is necessary to know about situation in seed bearing plants (spermatophytes). The spermatophytes produces two types of spores. microspore (Pollen grain) and megaspore.

In angiosperms there is only one functional megaspore which is not liberated from megasporangium (ovule).

The male and female gametes fuse to form zygote or oospore which eventually develops in to embryo inside the ovule.

The embryo and the rest of gametophytic tissue (integument and ovary wall) form the seed.

After shedding, the seed germinates and form a new plant,

Thus the requirments for the formation of seed are as follows.

(i) formation of two type of spore - microspores and megaspore is heterospory.

(ii) Reduction in the number of functional megaspore to one per megasporangium.

(iii) Retaintion of megaspore in the megasporangium until embryo development.

(iv) Elaboration of the apical part of megasporangium to receive microspores or pollen grains.

(v) Availability of sufficient nutrition for the development of embryo.

The evaluation of seed habit in heterosporous pteridophytes can be evaluated on the bases requirments. Selaginella is the most common genus of the heterosporous pteridophytes. Most of the species of Selaginella are heterosporous and they have only one functional megaspore mother cell which give rise to four megaspore after meiosis. Only a single functional megaspore in a megasporangium is present in selaginella rupestris, S. monosphora and S. erythropus like spermatophytes.

The development of female gametophyte, fertilization and embryo development takes place within the megasporangium.

Thus evolution of seed habit took place in such species of selaginella. However the seeds developed in these species can not be called true seeds because

(i) The megasporangium not covered with integument

(ii) There is no resting stage after embryo development, the development of embryo is accompanied with the development of shoot and rhizophore.