Importance of Endosperm HAUSTORIA: DD (HS) - IV

Dr. AMIT KUMAR PRAKASH.
DEPTT OF BOTANY.

In angiosperm, the endosperm is most common nutritive tissue for the developing embryo. Double fertilization was first ~~discovered~~ observed in Lilium and Fritillaria species by S. Nawaschin.

Haustorium is specialised structure of certain parasitic plants and fungi that penetrates the cells of the host plant to absorb nutrients. In parasitic fungi, 'haustoria' are formed from enlarged hyphae and in parasitic flowering plants, such as dodder (cuscuta), they are outgrowths of the sperm.

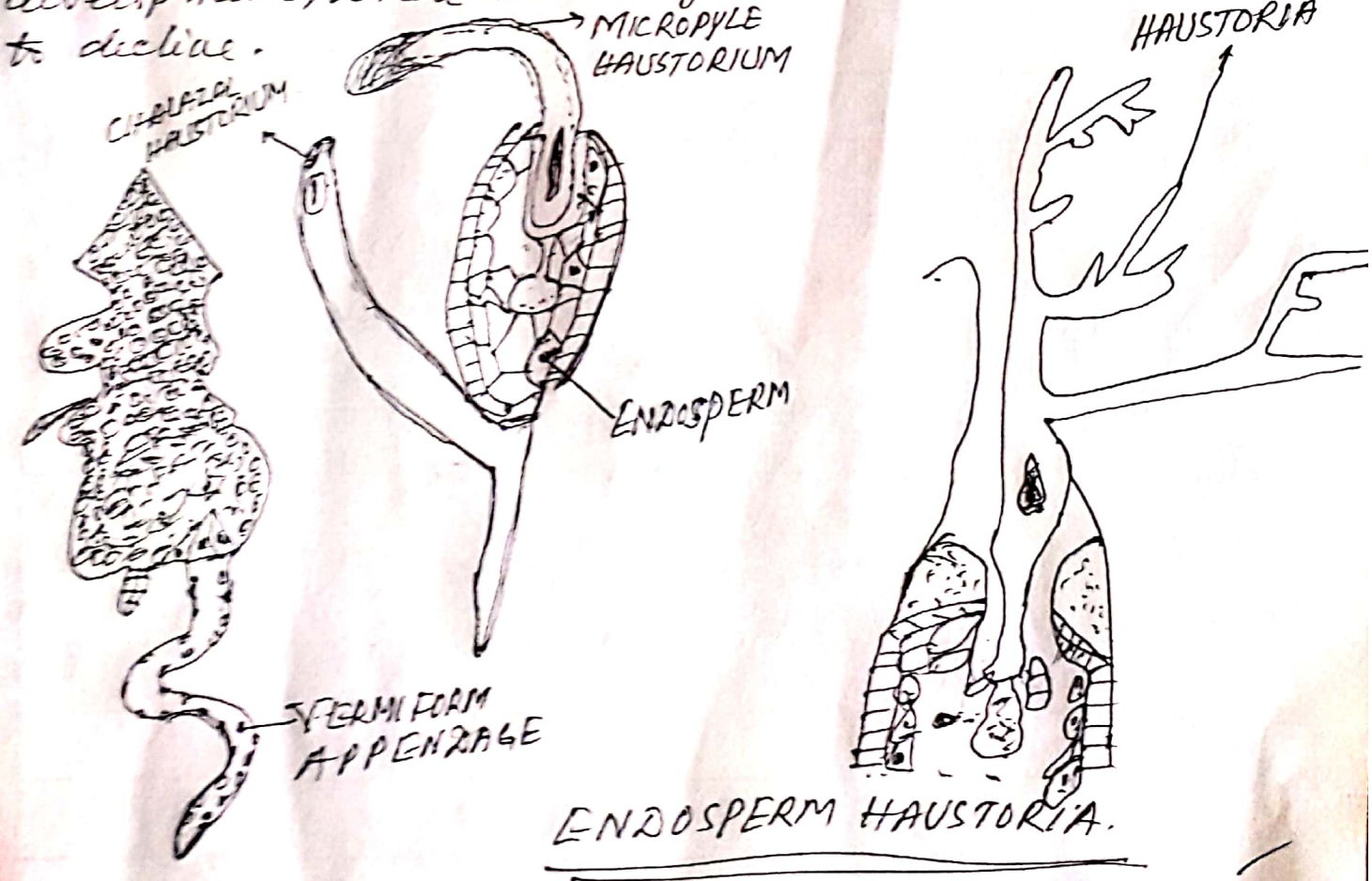
In higher plants the occurrence of haustoria is a common feature of cellular type of endosperm; it is more varied than that in the nuclear endosperm. The haustoria may be micropylar, chalazal or both.

Cellular endosperm is the common source of haustoria development. It is more varied than that in the nuclear endosperm. The micropylar haustoria are known to occur in Impatiens roylei and Hydrocera trifolia. The first division of the primary endosperm nucleus is followed by a transverse wall ~~rupt~~ figuring into two chambers of almost equal size. The chalazal chamber divides transversely and at a comparatively slow rate. This results in a tail-like chalazal part attached to the more massive tissue at the micropylar end. Further division takes place in upper part of the tail and cells to the endosperm tissue. The basal two or three cells of the tail elongate to established haustorium which penetrates into the chalazal part of the nucleus. Here haustoria act to absorb moisture and nutrient from the nucleus.

A very aggressive chalazal haustorium is found in Iodina rhombifolia, which is actually formed before fertilization. The chalazal end of the unfertilised embryosac

forms an extensive caecum, the lower end of which extends into the placenta and branches. After fertilization, the division of Primary endosperm nucleus is followed by transverse partitioning of the central cell, resulting in the formation of micropylar chamber and chalazal chamber. The endosperm proper is derived from the micropylar chamber alone. The chalazal chamber functions as a aggressive, uninucleate haustorium. Profuse branching at the free end gives the haustorium a coralloid appearance. Fine Structural Studies on endosperm of Lobelia have provided a strong evidence of their absorptive function.

In the family Acanthaceae, the endosperm development is asymmetric. Similarly, the plant Klugia notoniana displays an interesting pattern of development of haustoria. Both chalazal and micropylar haustoria are found in this plant the chalazal haustorium is initially binucleate, but eventually becomes uninucleate due to fusion of the two nuclei. The uninucleate haustorium grows laterally and upward consuming the subepidermal cells of integument. The micropylar haustorium comprises two uninucleate cells. It becomes active only during later stages of seed development, when the chalazal haustorium activity begins to decline.



ENDOSPERM HAUSTORIA.