

Sporangium or ovule. The mega sporophyte has papillate exospore and fibrous inner endospore. After undergoing successive processes female prothallus or endosperm is formed. A nutritive ~~tapetum~~ tapetum layer is formed. Some of the space surface cell near the micropyle and of female gametophyte enlarge and form 2 to 5 archegonial initials which finally develop into archegonium. Mature archegonium has ventral canal cell large egg, but neck canal cells are not found and this is its main feature of cycas archegonium.

Now coming to pinus ovule it appears that ovule of pinus also arise from a round hump of tissue called nucellar. From its base integument develops, its micropyles are directed inward, towards the axis of the cone. The integument is three layered i.e. outer and inner fleshy and middle stony. At the apex of the nucellus a cell enlarges and functions as archesporial cell which divides and forms tapetal cell and megaspore mother cell. After meiotic division linear tetrad of 4 haploid megaspores are formed. FERBRUSON (1901) reported variation in the cone of megaspore produced.

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Comparison of ovule of cycas and pinus

Ovule of cycas is orthotropous. Each ovule has a very thick integument. It remains enclosed completely by nucellus except at its apical origin where it forms a nucellar beak and micropyle within a beak like portion, there is a pollen chamber. The mature integument exhibits differentiation into outer fleshy layer, the sarcotesta, the middle stony layer, sclerotesta and inner fleshy layer. usually two vascular strands enter under the ovule, out of which outer strand enters the outer fleshy layer and it consists of about a dozen vascular bundle which enters up to the micropyle. the second strand, passes through the inner fleshy layer & consists of numerous vascular bundle. In the beginning a parenchymatous cell becomes prominent and after divisions its large cell develops as megaspore mother cell. With the meiotic division forms a linear tetrad of 4 haploid megaspore. the upper three megaspores are non-functional and degenerate soon. the functional megaspore is known as embryonal cell.

The megaspore of cycas like megaspore of all spermatophytes is permanently retained in the nucellus.

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