

Study on pollen grain and ovule developmental properties in *Salvia verticillata* L. collected from Three habitats of Iran

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Abstract

In botanical and taxonomical science embryological studies are specially important. In this research, developmental stages of pollen grains and ovules were studied in *Salvia verticillata* Lof Lamiaceae family. The flower and buds in different developmental stages were removed, fixed in FAA, stored in 70% ethanol, embedded in paraffin and sliced with a microtome. Staining was done with Hematoxylin and Eosin. The prepared slides from different developmental stages were studied using a light microscope (Germany) Zeiss Axiostar plus. On the basis of this research results for the three populations studied, ovule was anatropous, bitegmic and tenuinucellate. The development of the embryo sac followed the mono-sporic, polygonum type. After the meiosis, megaspore tetrads had linear arrangement. First, embryo sac was very small, so that its nuclei were compressed linearly but in maturation progress, embryo sac sustained longitudinal growth considerably. The anther was bisporangia. In *S. verticillata*, the tapetum was plasmodial and secretory with tetra-nucleate and bi-nucleate cells. In species microspore tetrads were observed with tetrahedral and tetragonal arrangement.

Keywords: Embryo sac, Macrosporogenesis, Microspore, Ovule, Pollen grain, *Salvia verticillata* L.