Comparative study on the developmental stages of reproductive organs (ovule and pollen grains) of *Origanum vulgare* L.

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**Abstract**

In botanical science developmental and embryological studies are especially important. In this research, developmental stages of pollen grains and ovules were studied in an *Origanum* genus, *Origanum vulgare*. The flower and buds in different developmental stages were removed, fixed in F.A.A, stored in 70% ethanol, embedded in paraffin and sliced with a microtome. Staining was done with Hematoxilin and Eosin. The prepared slide from different developmental stages were studied carefully using a light microscope. The results showed that ovaries were hypogyny type and have four locules with axile type of placentation. In every locules one ovule, and in embryo sac globular, heart shape, torpedo and cotyledonary embryo were observed. In the anther wall four layers were observed: epiderm, middle layer, mechanical layer and tapetum (from outer to inner layer). In the early stage of pollen development, tapetum was secretory layer then in the late pollen developmental stages become plasmolium. Tetrads were tetrahedral type. Mature Pollen grains in equatorial view were elongated, elliptic to rectangular-obtuse, and in polar view they were spheroidal, hexahedron-obtuse or hexahedron. The pollen grains were 6-pericolpate that stretches along the equatorial face and narrowing at the poles. The ornamentation of exine surface was reticulate-faveolate. The P/E ratio (Polar axis/Equatorial axis) was 1.13.

**Keywords:** Embryo sac, Microspore, *Origanum vulgare*, Ovule, Pollen grain