

3rd Global Summit on

Plant Science

August 07-09, 2017 | Rome, Italy

The role of pollination in the reproduction of aposporic *Crataegus tanacetifolia* (Rosaceae)

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Crataegus tanacetifolia is an endemic species for Turkey and reproduces asexually by gametophytic apomixis. Sexual development ends by the degeneration of megaspore tetrad simultaneously with the formation of 4 nucleated aposporic embryo sac. To investigate the embryo and endosperm formation, ovaries at different developmental stages were stained by DAPI (4',6-diamidino-2-phenylindole) and hematoxylin. Additionally, the stigma and style were stained by Anilin Blue to observe the pollen tubes. Although the 8-nucleated mature aposporic embryo sac exists in the ovule, the pollen grains are not shed yet. Occurrence of proembryo and pollination take place synchronously. Although a small number of pollen grains land on stigma, only few of them germinate at this stage and polar nuclei fuse to form secondary nucleus. At globular embryo stage, the numerous pollen grains germinate on stigma and secondary nucleus starts mitotic divisions to form free nucleated endosperm. At the stages of heart and early torpedo shaped embryo, pollen tubes start to elongate into the style. Endosperm becomes cellular by cell wall formation, initiated around the embryo. Consequently, the embryo and endosperm develop independent of fertilization. Endosperm develops autonomously and embryo forms by parthenogenetically in *Crataegus tanacetifolia*.

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