

Abstract

Thermopsis turcica is a member of the flora of Turkey and is the only representative of the genus *Thermopsis* in Turkey. It is commonly known as 'aci piyan, Eber sarisi, and sari meyan' among locals. Its remarkable feature is to have a polycarpellary gynoecium. Although it has at least 2 free carpellary ovaries, the ovular structure did not generate in each carpel under extreme hot weather condition. Ovule development is influenced by interactions between genetic, environmental and physiological factors. The objective of the present study was to analyze whether a difference within ovules extracted from pistils having a different number of the full-developed carpel in vitro plant regeneration. For this purpose, the fruit pods constituted 3 carpels but not fully generated ovules due to unexpected climatic conditions were collected from Nezahat Gokyigit Botanical garden of Istanbul in Turkey in 2014 for in ovule-embryo culture. The protocol used in this research consisted of dissecting embryos, culturing isolated embryos on a suitable medium, embryo development, and embryo germination to grow into a plantlet. Although in ovule-embryo culture was succeeded in all samples tested, callus formation was seen only on root surfaces of samples extracted from pistils having two full-developed carpels. To search whether calli formed on are embryogenic, calli were placed on solid MS medium and were also taken into liquid MS medium. As a result, plantlet regeneration was observed after a month of culturing. Based on this result, we suggest that these calli can be good sources for cryopreservation studies on *T. turcica*.

Keywords: piyan, polycarpellary, ovule development, embryo, Nezahat Gokyigit Botanical Garden, callus