EMBRYO ULTRASTRUCTURE IN *ORIGANUM MAJORANA* L.(LAMIACEAE) AFTER SEED CONDITIONING

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Cytological changes in quiescent or germinated embryos after matriconditioning with Micro-Cel E or osmoconditioning with polyethylene glycol (PEG) were studied in comparison to quiescent or germinated untreated embryos of marjoram (*Majorana hortensis* L.). The sequence of changes related to embryo activation was identical in untreated and conditioned samples, although conditioned embryos underwent activation earlier. In those embryos the degradation of protein and lipid bodies, accompanied by vacuolation and accumulation of starch grains in amyloplasts, was observed even in nongerminated samples, whereas in control embryos the same ultrastructural changes did not occur until germination. The changes in ultrastructure occurred first in the root cap and proceeded towards the shoot meristem. In cotyledons, few symptoms of activation were detected regardless of the treatment. The appearance of Golgi structures in the root cap identified the radicle protrusion stage of germination.

Key words: Embryo ultrastructure, marjoram, matriconditioning, osmoconditioning, priming.