

Germination of olive seeds and some factors affecting it

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Abstract

This study was carried out at the faculty of agriculture experiment station, Tripoli, during the period from autumn 1995 to summer 1996 in shaded greenhouse. Fruits of six olive varieties (*Olea europaeae* L.) namely Wild olive, Lotchito bandolo, Gargashi, Shemilali, Frantoyo and Gargabi, were harvested at a completely dark colored stage during the middle of October to the end of November 1995. The objectives of this research is to study the effect of varieties diversity, physical properties and oil percentage in seeds and the effect of cold stratification at 2.5 C° for 45 days followed by soaking of seeds for 6 hr in concentrated sulfuric acid, scarification by clipping the endocarp radical end, on the germination of olive seed. Result indicated that there was slight reduction in seed viability after stratification compared to before stratification of seeds. All varieties did not show correlation between fruit oil and seed oil percentage in each variety. Results of statistical analysis of the seed germination, germination rate, dead seed percentage and dormant seed percentage, indicated the presence of significant differences which is due to the interactions of the studied factors. Whereas the means of interaction were separated and compared according to Duncan's multiple range test. Variety diversity, physical properties and oil percentage influenced the responses of all treatments. Wild olive and Shemilali showing correlation between the small size seeds that have high oil percentage and high germination percentage. The cold stratification treatments did not show desirable effect on seed germination. Sulfuric acid treatment increased permeability of the endocarp and penetration of the acid inside the seed and killed the embryo, subsequently the percentage of germination decreased to 0% and the percentage of dead seeds increased to 100% in all varieties. However the untreated seeds had low percentage of dormant seeds and high percentage of germination compared with treated seeds, which 26.4% in case of Wild olive and there is no significant differences in case of Shemilali for both (non stratified + control) and (non stratified + clipping) that have germination percentage of 16%, there was no correlation between germination rate and germination percentage. The above findings confirm the role of mechanical dormancy by resistance of endocarp layer of developing embryos during germination from one side, and deny the existence of physiological dormancy in olive seeds from the other side.