IN VITRO PROPAGATION OF TRUE SEEDS OF POTATO (*SOLANUM TUBEROSUM* L.)

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Abstract

The purpose of the study was to select suitable medium to propagate potato true seeds to be used in the various studies in the future. The study was conducted in the Tissue Culture Laboratory and potato production seedbeds of the Field Crops Department of the Faculty of Agriculture of the Ege University in 2016 and 2017. Tubers of the potato genotype 101 (Nif), a release of the Department, were grown in seedbeds and the fruits were collected. The fruits were squeezed in water and the true seeds were obtained and stored to break their dormancy. The true seeds were cultured in the test tubes of the MS medium (control) and other 25 different nutrient medium supplemented with GA_3, IAA, BAP (0.1, 0.5, 1, 2, 3 mg/l), IAA, BAP (0.1, 0.5, 1, 2, 3 mg/l)+GA_3 (0.1 mg/l). The regenerations of plantlets were evaluated. Based on the results; the highest plantlet height was obtained from the MS+0.1 mg/l IAA medium (8.4 cm); the highest regenerant number from the MS+1, 2 mg/l BAP medium and the MS+2, 3 mg/l BAP+0.1 mg/l GA_3 medium with the range of 1.83 and 2.00. The highest root length was obtained from the MS+3 mg/l IAA+0.1 mg/l GA_3 medium (3.23 cm) and the highest root number was obtained from the MS+1 mg/l IAA+ 0.1 mg/l GA_3 medium (3.0).

Keywords: True seed potato, plant growth regulators, *in vitro* propagation

IDENTIFICATION OF *SCHIZOSACCHAROMYCES POMBE IRD* MUTANTS RESISTANT TO GLUCOSE SUPPRESSION AND OXIDATIVE STRESS

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Abstract

Glucose both is the favorite carbon and energy source and acts as a hormone which plays a regulated role in many biological processes. It has been reported a lot of studies about calorie restriction depending on uptake low glucose extended lifespan in many organisms included in *Schizosaccharomyces pombe,* while uptake high glucose led to undesired results such as diabetes and aging. In this context, it has been determined that was a potential relationship between glucose sensing/signaling and oxidative stress response pathways. Accordingly, in our previous studies, we isolated *S. pombe ird5, ird11, ird13* and *ird14* mutants with different complementation groups. The fact that four mutants are different complementation groups indicates to be multiple regulatory mechanisms in glucose sense and signaling pathways. It was determined that *S. pombe ird11* is always resistant to oxidative stress without calorie restriction whereas *ird5, ird13 and 14* display an adaptive response against to oxidative stress. For detection of target molecules and new approaches to the treatment of the complex human diseases such as diabetes and aging, identification of these mutants has a huge potential. For this reason, it was aimed to detect as correct and sensitive as the gene(s) caused to mutation by next generation sequencing systems.
The result of this study will contribute to basic sciences the fact that the relationship between the glucose sense/signaling and oxidative stress response components was found through which molecules are regulated in *S. pombe*, alongside it suggested that it will light stress related diseases and aging studies.

Keywords: Glucose supression, oxidative stress, signaling, *Schizosaccharomyces pombe*