

Somatic Variations and Salt Stress Tolerance in Durum Wheat

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Background and aim: The main objective of this work is to overcome the effect of salt stress on wheat through different techniques and biotechnology approaches, which are used to improve the behavior of different varieties of durum wheat and to select the best performing one. Somatic embryogenesis is currently integrated into many selection schemes since it can significantly reduce the length of improvement cycles.

Methods: Development of a somatic embryos is obtained after culturing three varieties of durum wheat on a nutrient medium supplemented with 3.5mg/l of 2,4-D.

Selection of tolerant varieties in relation to salt stress has been realized by the addition of a selective agent: the NaCl (0 and 16 g / l). RAPD profiles analyses revealed the presence of somaclonal variations after regeneration of several seedlings.

Results: The analysis of the results reveals the embryogenic capacity of the three varieties studied by durum wheat. After culturing these three varieties on a regeneration medium, the development of seedlings from somatic embryos has been recorded with a rate of 30.36%, 13.33% and 24.74% regeneration respectively for the varieties Beliouni, Waha and Adnan-2 in salt stress absence and a rate of 4.07 %, 14.15% and 3.38% respectively for the varieties Beliouni, Waha and Adnan-2 in the salt stress presence.

The analysis by profile RAPD with 2 arbitrary primers (OPE-13 And OPA- 17) seedlings regenerated in presence and absence of salt stress reveal a rate of polymorphism equal to 11.11% for the primer OPE- 13 and 6.25% for the primer OPA-17, the presence of these polymorphic bands indicate the presence of somaclonal variations.

Conclusion: Even if the durum wheat is a recalcitrant plant which answers with difficulty the culture, the somatic embryogenesis is one of vegetable biotechnology techniques which can overcome all genomic barriers and through which the varieties of durum wheat can be improved in relation to their resistance to various stress abiotiques.

Keywords: Durum wheat, Somatic embryos, Salt stress, RAPD analysis.