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DEVELOPING WHEAT AND BARLEY LOCAL LANDRACES THAT ARE RESISTANT TO LODGING WITH REDUCED STATURE AND LONGER SPIKE USING NUCLEAR TECHNIQUES IN LEBANON

A mutation experiment was conducted at the Lebanese Agricultural Research institute (LARI), Lebanon, Tel Amara station in 2014 on two wheat genotypes (Seri 82 and Breiji) and on one barley genotype (Assi), treating with different gamma radiation doses (150, 200, 250 and 300 Gy). Several traits were studied over 4 years which started in 2011 on four mutated generations (M1, M2, M3 and M4 populations) in comparison to untreated controls. The Selected spikes of Barley (Assi) treated M4 generation (150 and 200 Gray) were characterized by shorter stature with an average plant height respectively of 60 and 63 cm compared to 67 cm for non-treated ones, lengthy spike (6 cm for 0 G compared to 6.5 cm for 150 G and 200 G) and resistance to lodging (20% for 0G to 15% for 150G and 200 G). Selected spikes of Bread wheat (seri 82) (250 and 300 Gy) treated M4 lines showed a shorter stature compared to the mother plants with an average plant height respectively of 44 and 43 cm compared to 65 cm for non-treated variety. The spike length for parent obtained as 8.6 cm, mutant lines recorded as 9.6 cm. Selected spikes of Breiji (Durum wheat) lines (250 and 300 Gy) were recorded as 65 and 68 cm while parents 75 cm. An increase in spike length was observed in mutant lines compared to parents (11 cm for parent and respectively 11.3 cm and 11.6 cm for mutant lines). Those mutant lines showed more lodging tolerance compared to parent plants 25% for the mutant lines and 40 % for the parent).

Country or International Organization

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