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## HIGH YIELDING AND EARLY MATURITY BARLEY MUTANT LINE OBTAINED THROUGH IN VITRO RADIO-MUTAGENESIS

In vitro cultures are important tools for plant improvement, they allow increased efficiency of selection and the regeneration of desired mutant plants in the presence of selective agents. They also allow in vitro multiplication of selected lines. The combination of tissue culture systems with mutagenesis increases the effectiveness of creating and exploiting new genetic variabilities. Plaisant is a high yielding and drought sensitive, barley variety that was selected for in vitro radio-mutagenesis and subsequent in vitro mutation screening for drought-resistant mutants. Callus induced from immature embryos was irradiated with gamma ray (15 Gy). After several cycles of maintenance, on a regeneration medium containing a selective drought agent (PEG/25%). Four M1 seedlings were regenerated and placed, after acclimation, in a greenhouse until M2 seeds were obtained. The four mutant lines (Plaisant1, Plaisant2, Plaisant3 and Plaisant4) were sown in the field for several years to ensure progression in generations. During these progressions, Plaisant1 showed poor field performance, whereas Plaisant3, singularised by showing early maturity (-17 days compared to the parent). Plaisant3 was retained and evaluated, together with Plaisant2, Plaisant4 (in M8 and M9 generations) and the parent, for grain yield. During these evaluations, Plaisant2 and Plaisant4 mutants showed lower grain yields than the parent. However, Plaisant3 was distinct in having a grain yield higher than the parent in some years: in Year 1 it was less, 21.2 versus 27.9 quintal /ha, i. e. 21200 to 2790Kg to /Ha. The procedure used was effective for regenerating putative drought-resistant mutants, one of these lines showed was high yielding and early maturing and is ready for testing in semi-arid zones.

### Country or International Organization

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