Main theme	Sub - Theme	Code Number
Natural Resources		**29**

Study Name	**Stimulating Seed Germination of Oldman Saltbush *(Atriplex nummularia L.)* by Gamma Radiation.**
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Date of Study	1998 - 2000
Objectives	The main objective of this study was to use Gamma radiation for improving the germination of *A. nummularia* seeds and hoping to induce some sort of positive mutation in the irradiated plants.
Output and Recommendation	Intact and naked seeds were both subjected to thirty –four treatments. Purity and viability percentage of Oldman saltbush averaged 67.0 ± 3.3 and 57.0 ± 9.5, respectively. The germination percentage of intact seeds averaged 4.0 ± 4.6 compared to 70.0 ± 5.2 for naked seeds. This indicates that the major factor impeding the germination of Oldman saltbush in the presence of bracts around the true seed. Analysis of variance revealed highly significant ($P < 0.001$) differences in cumulative germination and viability percentages of *Atriplex nummularia* seeds among the different treatments. Seed nature (intact or naked) had a highly significant ($P < 0.001$) among the different treatments, but not between trails. This means that the cumulative germination percentage should be adjusted to the number of viable seeds in each replicate. Conclusions: Removing the bracts of utricles surrounding the true seed of Oldman saltbush improved the germination significantly. Future should focus on developing means to remove these bracts with minimal damage to the true seed or on developing means of priming the seeds of *Atriplex nummularia* before seeding. Radiating seeds at different of Gamma rays reduced germination below the levels of the control. Low doses of radiation (15 to 20 Kra) increased number of leaves, number of branches and length of seeding. High does of radiation (above 35 Kra) inhibited leaf production and branching, and resulted in production of abnormal seedlings (twisted, curly, and splitted – cotyledons).
Development Aspects	Rangelands in Jordan are usually classified as arid lands receiving an annual rainfall less than 200 mm. Artificial revegetation is thought to be the remedy for rehabilitation of these degraded rangelands. Because of drought and scarcity of precipitation, fodder shrubs are preferred to herbaceous species as a tool for rangeland revegetation. In Jordan the common fodder shrubs that are used for revegetation are Atriplex halimus L. and Atriplex nummularia L. the seedings of these two species are produced in nurseries and remain there for at least 10 months before transplanting into the field. This transplanting technique is sluggish and costly ($ 750- 1000/ ha). To reduce the cost of rangeland revegetation, direct seeding could be the alternative technique to transplanting.
Remarks	https://doi.org/10.2989/10220110509485871