

Short Communication

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DEVELOPMENT OF SPINELESS *SILYBUM MARIANUM*

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Experimental cultivation of the wild growing *Silybum marianum*, commonly called Lady's thistle. (N.O. Compositeae) and the fatty acid composition of its seed oil was recently reported¹. It was found that per acre yield (about 600 kg seeds) compared favourably with sunflower (800 kg/acre) and safflower (500 kg/acre) the two oil seed crops which are being introduced to increase the local production. Biological evaluation for nutritional species of *Silybum marianum* seed oil on Swiss albino mice was also carried out without noticing any adverse effects as concluded from histo-pathological examination of stomach, liver, kidney and intestine of the mice [2].

Since the crop has a potential to help increase the local production of vitally needed vegetable oil in the country it is of interest to study it more thoroughly. During cultivation trials it was noticed that harvesting presents difficulties as the plants, including the ripe flowers, are covered with

spines. It is thus natural to develop a spineless cultivar for making *Silybum marianum* a regular oilseed crop. As a first step the seeds were irradiated (at NIAB Faisalabad) at six different radiation levels (50 KR, 75 KR, 100 KR, 125 KR, 150 KR and 175 KR) with a view to observing any genetic changes which may help in developing a spineless variety.

The present communication describes some preliminary observations on the germination/maturity behaviour of irradiated *Silybum marianum* seeds. The irradiated seeds showed poor germination when compared with the normal seeds and other characteristics of the plants from the irradiated seeds were:-

1. Slow growth
2. Less height
3. Late flowering
4. Less spines
5. Capitulum small in size
6. Delayed germination
7. Flat and broad seeds
8. Increased % of oil yield.

Table 1. Observation on the growth of normal and irradiated seeds of *Silybum marianum*

Seed type	Germination		Height of the plant	Spine intensity			Size of capitulum	Oil yield percentage	Remarks
	%	Period		Stalk	Leaves	Flower			
Normal	95	10 days after sowing	150 cm	96	20-40	38-40 Spiny Bracts	2-5 cm	25.1%	
Irradiated	45	24 days after sowing	60-80 cm	36-40	10-20	20-38	2-3 cm	27.2	
75 KR	21	"	60 cm	80-90	20-40	30-35	2-3 cm	25.1	
100 KR	16	"	50-60 cm	90-95	30-40	35-40	2-3 cm	25.1	
125 KR	9	"	50-60 cm	90-95	30-40	34-50	2-3 cm	—	Plants died before the formation of seeds
150 KR	6	"	50-60 cm	90-95	30-40	35-40	2-3 cm	—	"
175 KR	—	"	50-60 cm	90-95	30-40	35-50	2-3 cm	—	"

It was, however, observed that seeds irradiated at 50 KR had a comparatively better germination percentage and their plants had less spines when compared with the normal plants.

Comparative data, both for the irradiated and the normal seeds is given in Table 1.

In view of the present observations it is intended to further study the effects of irradiation at 40, 30, 20 and 10 KR to know if germination percentage is maintained as in the normal seeds and the plants are free from spines.

Data regarding these and other similar observations will be communicated later.

Keywords: Spineless *Silybum marianum*

REFERENCES

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