

LIST OF TABLES

Chapter	Table	Title	Page
III	3.1	Varieties under cultivation in different regions of India.	18
IV	4.1	Effect of EMS and γ -radiations on the seed germination of <u>Carthamus tinctorius</u> (L.) Var. N 62-8.	24
	4.2	EMS effect on the activities of peroxidase, lipase and amylase of <u>Carthamus tinctorius</u> (L.) Var. N 62-8 seeds 24 h after treatment	31
V	5.1	Effect of EMS and γ -radiation on growth rate of <u>Carthamus tinctorius</u> (L.) Var. N 62-8	38
	5.2	Effect of EMS and γ -radiation on the leaf area of <u>Carthamus tinctorius</u> (L.) Var. N 62-8	42
	5.3	Effect of EMS on morphological anomalies and their frequencies of <u>Carthamus tinctorius</u> (L.) Var. N 62-8.	46
	5.4	Types and frequencies of morphological abnormalities induced by irradiation.	47
	5.5	Effect of EMS and γ -radiation on stomatal density of <u>Carthamus tinctorius</u> (L.) Var. N 62-8	49

Chapter	Table	Title	Page
V	5.6	Effect of EMS and r ¹ -irradiation on pollen fertility of <u>Carthamus tinctorius</u> (L.) Var. N 62-8	51
	5.7	Effect of increasing concentration of EMS and increasing dosage of r-irradiation on chlorophylls of <u>C.tinctorius</u> (L.) Var. 62-8 seedlings.	54
	5.8	Effect of EMS and r ¹ -irradiation on the chlorophyll stability index of <u>C.tinctorius</u> (L.) Var. N 62-8.	56
	5.9	Effect of EMS and r-radiation on the carbohydrate content of leaves of <u>C.tinctorius</u> (L.) Var. N 62-8	57
	5.10	Effect of EMS and r-irradiation on the nitrogen and protein content of leaves of <u>C.tinctorius</u> (L.) Var. N 62-8.	60
VI	6.1	Effects of EMS and r ¹ -radiation on the rate of ¹⁴ CO ₂ incorporation in <u>Carthamus tinctorius</u> (L.) Var. N 62-8	65
	6.2	Effect of EMS and r ¹ -radiation the rate of ¹⁴ CO ₂ incorporation in <u>Carthamus tinctorius</u> (L.) Var. N 62-8	66

LIST OF FIGURES

Chapter	Figures	Caption	After Page
II	2.1	Upper : Types of point mutations. Lower : Types of base pair substitution.	8
	2.2	Types of primary DNA alterations and their possible genotypic and phenotypic consequences.	8
	2.3	Inactivating DNA alterations.	10
	2.4	Alkylation (ethylation) of guanine (at the 7 N position) and resulting tautomeric shift (lower right) and depurination	13
IV	4.1	Effect of EMS and γ -radiation on the seed germination of <u>Carthamus tinctorius</u> (L.) Var. N 62-8.	24
V	5.0	Effect of EMS on leaf morphology	35
	5.1	Effect of EMS on growth rate	38
	5.2	Effect of γ -irradiation on growth rate	38
	5.3	Effect of EMS and γ -irradiation on total photosynthetic leaf area.	42
	5.4	Effect of EMS and γ -irradiation on stomatal density.	49

Chapter	Figures	Caption	After Page
V	5.5	Effect of EMS and r ⁻ irradiation on total chlorophyll content.	54
	5.6	Effect of EMS and r ⁻ irradiation on carbohydrate content.	57
	5.7	Effect of EMS and r ⁻ irradiation on nitrogen content	60
