

## Inheritance of very high linoleic acid content and its relationship with nuclear male sterility in safflower

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First published: 15 September 2008

<https://doi.org/10.1111/j.1439-0523.2008.01494.x>

**Keywords:** *Carthamus tinctorius*, genetic linkage, linoleic acid, nuclear male sterility, safflower

Safflower (*Carthamus tinctorius* L.) possesses the highest amount of linoleic acid among the 10 major vegetable oil crops of the world. Very high linoleic acid content is controlled by recessive alleles at a single locus *Li*. However, deviated segregations from the expected monogenic inheritance have been observed in crosses involving nuclear male-sterile (NMS) lines. The present research was undertaken to study the inheritance of very high linoleic acid content in safflower and its relationship with nuclear male sterility. F<sub>1</sub>, F<sub>2</sub>, F<sub>3</sub>, BC<sub>1</sub>F<sub>1</sub> and BC<sub>1</sub>F<sub>2</sub> seed generations were evaluated in a cross between CR-142 (a line with very high linoleic acid content, 88%) and CL1 (an NMS line with wild-type linoleic acid content, 74%). The genetics of linoleic acid content in male-sterile plants was determined by testcrossing with CR-142. The results confirmed monogenic inheritance. The analysis of the F<sub>3</sub> and BC<sub>1</sub>F<sub>2</sub> to CL1 seed generations demonstrated a repulsion-phase linkage between *Li* and *Ms* loci, the latter conferring the NMS trait. The recombination rate between *Li* and *Ms* was estimated to be 0.09.