**Identification of promising sunflower (*Helianthus annuus* L.) inbred lines for oil and quality parameters**

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**ABSTRACT**

Improvement of oil content and oil quality are the major goals in the sunflower research. In the present study, a set of 60 sunflower inbred lines were evaluated for oil content and fatty acid profile. Oil content in the inbreds, ranged from 28.13 (GPR-58) to 41.03% (RHA 6D-1 and AKSFI-42-1). Nine inbred lines showed more than 38 percent oil content and one line showed high linoleic acid content of 70.2% (RHA-272). Two other inbred lines *viz,.* AKSFI-52-2 (10.47%) and CSFI-5033 (10.27%) have recorded high stearic acid content.

**INTRODUCTION**

The cultivated sunflower (*Helianthus annuus* L.) is an important oilseed crop mainly grown for the production of high quality edible oil. Its oil containing high amount of unsaturated fatty acids. Quality of vegetable oils is mostly associated with their fatty acid profile. The objective of the present study was to determine the oil content and fatty acid profiling of the 60 sunflower inbred lines.

**MATERIALS AND METHODS**

The oil content (%) was measured by Nuclear Magnetic Resonance (NMR) spectroscopy using 30 g samples as described by Yadav and Murthy (2006). Oil was extracted in hexane using a soxhlet apparatus and methyle esters were obtained by two step catalytic process. Fatty acid composition was determined using an Agilent 7860A gas chromatograph (GC) equipped with a flame ionization detector (FID) and an auto sampler (Anjani and Yadav, 2017).

**RESULTS AND DISCUSSION**

A Total of 60 inbred lines were analysed for oil content and fatty acid profile. Oil content in the inbred lines ranged between 28.13 (GPR-58) and 41.03 (RHA 6D-1 and AKSFI-42-1) with an average of 33.72 %. Nine inbred lines *viz.,* AKSFI-42-1 (41.03), RHA-6 D1 (41.03), RHA-288 (40.34), CSFI-5133 (39.90), AKSFI-52-2 (39.51), R-630 (39.43), GKVK1 (39.40), GPR-102 (38.87) and HOHAL-23 (38.22) showed more than 38 percent oil content. Maximum oleic and linoleic acid contents were recorded in RHA-272 (70.2%) and HOHAL-23 (48.30%), respectively. Stearic acid, ranged from 2.67% (CSFI-5075) to AKSFI-52-2 (10.47%) with an average of 5.53%. High stearic acid increases the stability of oil and has great importance in chocolate industry. High oil content inbred lines may be used in the variety/hybrid development as well as for population improvement program in sunflower.

**REFERENCES**

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