Enana (Reg. no. GS-1, PI 610263), a safflower (Carthamus tinctorius L.) genetic stock, was released by the Institute for Sustainable Agriculture (CSIC) at Córdoba, Spain, in 1998. It is characterized by reduced plant height and was developed from the Spanish cultivar Rancho (1) by chemical mutagenesis. Ethylmethane sulfonate (EMS) was applied to seeds of Rancho in January 1986. Seeds were soaked for 15 h in a solution of 0.5% EMS (v/v, in 0.1 M phosphate buffer pH 7). After the mutagen treatment, the seeds were thoroughly washed in running tap water for 10 h to rinse excess EMS. After drying, the seeds were immediately sown in the field in 5-m-long rows with 1-m spacing between rows and a plant spacing of 33 cm within rows. M₁ plants were self-pollinated by placing paper bags over inflorescences. Individual M₁ plants were harvested and the resulting M₂ seeds were sown as in the previous generation. A reduced plant height mutant was identified among the M₁ plants, selected, and self-pollinated (2). The M₂ segregated for plant height. Ten reduced height M₂ plants were selected, self-pollinated, and their seeds bulked. The M₃ did not segregate. Enana, an M₃ line, was produced by self-pollinating M₂ and M₃ plants. Field trials to characterize Enana were conducted at Córdoba, Spain, in 1996 and 1999. In 1996, plants were grown at a plant density of 30,000 plants ha⁻¹, with a plant spacing of 33 cm within rows and 1 m between rows. In 1999, plants were grown at a plant density of 214,000 plants ha⁻¹, with average plant spacing of 10 cm within rows and 0.7 m between rows. Rancho has a typical plant height for safflower cultivars, while Enana is much shorter. Enana averaged 60.4 ± 5.6 (standard deviation) cm tall compared with 105.4 ± 10.2 cm for Rancho in 1996, and in 1999 it averaged 58.8 ± 3.9 cm compared with 98.4 ± 4.1 cm for Rancho. An important characteristic of Enana is its potential for producing a large number of seeds per plant, at least under low plant density. Under low plant density (30,000 plants ha⁻¹), plants of Enana produced 96.4 ± 13.3 heads plant⁻¹ compared with 35.2 ± 10.4 heads plant⁻¹ for Rancho. However, this potential was not expressed under a higher plant density (214,000 plants ha⁻¹), when Enana produced only 12.2 ± 5.1 heads plant⁻¹ compared with 20.3 ± 7.5 heads plant⁻¹ for Rancho. There were no differences in flowering date between Rancho and Enana. However, Enana differs in flowering from ‘Mexico Dwarf’, which is about 50 cm tall and flowers very early (3). Both Enana and Rancho have orange flowers and white seeds. Seeds of Enana are smaller and contain less hull and more oil than those of Rancho. Thousand-seed weight averaged 31.8 ± 4.1 g for Enana compared with 48.2 ± 4.9 g for Rancho. Enana seeds contained 31.5 ± 2.0 % of hull and 423 ± 18 g kg⁻¹ of oil compared with 40.3 ± 2.7% of hull and 365 ± 18 g kg⁻¹ of oil for Rancho.

Since F₁ plants from crosses between normal and Enana dwarf plants exhibit intermediate height, this genetic stock will be useful to create safflower lines with reduced or intermediate plant height. In particular, parental lines derived from Enana could be of great value for reducing the height of tall parents in the production of F₁ hybrids. The shorter plants should have greater lodging resistance. Another important advantage of Enana is its higher seed oil content. Seeds of Enana will be maintained by the Western Regional Plant Introduction Station, Pullman, WA, (http://www.ars-grin.gov/ars/PacWest/Pullman; verified March 8, 2000) and small quantities of seed are available upon request. Appropriate recognition of the developer is requested when Enana contributes to research programs or the development of new germplasm.

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References and Notes