Registration of ‘Rachayya’ Lentil

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‘Rachayya’ lentil variety (Lens culinaris Medikus subsp. culinaris) (Reg. No. CV-27, PI 643450) was developed at the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria, and released in Lebanon by the Lebanese Agricultural Research Institute, Tal-Amara, Lebanon, in 2000. Rachayya is a high-yielding, wilt-resistant lentil variety [caused by Fusarium oxysporum f. sp. lentis (Vasudeva & Srinavasan) Gordon.] with upright growth habit. The cultivar has wide adaptation and is recommended for cultivation in all lentil-growing areas in Lebanon.

Rachayya was introduced to Lebanon in 1990 from ICARDA, Aleppo, Syria, through the Food Legume International Nursery Network, with an accession number ILL 6246. It is a breeding line developed from the cross ILL 2129/ILL 13. The female parent, ILL 2129, is a landrace from Syria, and the male parent, ILL 13, is a landrace from Jordan. The two lines were crossed at Tel Hadya, ICARDA, in 1980 under plastic house conditions, and the line was developed following a bulk-pedigree method (using regular and off-seasons for generation advancement), where single plant selection was practiced in the F2 generation in 1983. Later, F3 families and F4 lines were tested in nonreplicated trials in 1984 and 1985, respectively. After assessing its yield performance and other related morpho-agronomic traits such as plant height, standing ability, seed traits, podding profile, maturity period, and wilt resistance in preliminary and advanced yield trials, Rachyya was entered into the international testing program as FLIP 87-56L, and later was designated in ICARDA’s Lentil Germplasm Catalog as ILL 6246. It was released for commercial production with its popular name Rachyya.

Rachyya was initially identified as a promising line at Terbol Research Station, Bekaa Valley, Lebanon, which receives an annual average rainfall of 500 mm. From 1990 to 1999 Rachyya was evaluated at different sites at on-farm trials representing the major production zones of lentil in Lebanon. Over the period and across three locations, Rachyya produced an average yield of up to 2200 kg ha−1 compared with 2000 kg ha−1 for the best check, ‘Talia-2’, an increase of 10%.

Fusarium wilt is a major impediment of lentil production in Lebanon. Yield loss up to 72% has been reported in Syria (Bayaa et al., 1986). Rachyya is a wilt-resistant variety based on its reaction under plastic house and field conditions. Evaluation in a well-developed wilt-infected plot at Tel Hadya, Rachyya showed a high level of resistance. Only 8% of plants were infested compared with up to 70% wilted plants in the Syrian landrace ‘Hurani’. In on-farm evaluations, Rachyya also showed a high level of resistance compared with Lebanese locals.

Rachyya is a semi-erect, medium-statured cultivar averaging 30 cm tall; it develops an average of three primary branches per plant. The height of the first pod-bearing node is at about 15 cm above ground level, which helps reduce harvest losses by combine and double-knife cutter bar. Its leaves are dark green, slightly pubescent, and have long tendrils. Long tendrils intertwine and help maintain an upright canopy, making the cultivar suitable for mechanical harvest. Flower color is white, and flowering takes place in 105 d and maturity in 128 d. The cultivar bears an average of 34 pods per plant, with two or three pods per peduncle. Seeds are round with bright red cotyledons and weigh 3.2 g 100 seeds−1. Pods are resistant to shattering at maturity (unless overdried), a highly desirable trait for machine harvest. Dehulled seeds of Rachyya contain 26.2% protein, and straw has 6.6% protein, measured by the Macro Kjeldahl method. Its cooking time is about 34 min based on the thumb press method.

Plant variety protection will not be sought for Rachyya.

Breeder seed of Rachyya is being maintained at LARI and at the Integrated Gene Management Program, ICARDA, Syria. Small quantities of seeds of Rachyya for research purposes can be obtained from the first or corresponding author for at least five years and thereafter from the USDA National Plant Germplasm System. Recipient of seeds are requested to make appropriate recognition of the source of Rachyya if it used in the development of a new cultivar, parental line, germplasm, or genetic stock.

References

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