Registration of High Oil Cuphea Germplasm VL186

The Cuphea germplasm VL186 (C. viscosissima Jacq. × C. lanceolata f. silenoides W.T. Aiton) (Reg. no. GP-27, PI 606543) was developed by the Department of Crop and Soil Science at Oregon State University and officially released by the Oregon Agricultural Experiment Station in 1998. VL186 is a diverse open-pollinated population with a seed oil concentration of 350 g kg⁻¹ and low seed dormancy. This germplasm was released as a resource for developing cultivars with increased seed oil concentration and as a base population for selecting for increased seed oil concentration.

VL186 was developed from three cycles of recurrent mass selection for increased seed oil concentration. The base population was the C. lanceolata f. silenoides × C. viscosissima population LN50. LN50 was developed by crossing seven half-sib families (LN77-63, LN77-107, LN77-243, LN77-270, LN77-371, LN77-462, and LN77-471) from the C. lanceolata population LN43 (4) with two C. viscosissima lines (PI 534761 and PI 574621) (1, 3). Seeds from these crosses were bulked and the crosses were intermated en masse in an isolated field at Corvallis, OR, in 1990. The C. lanceolata families were selected for increased oil concentration among 160 LN43 progeny grown in an isolated field at Corvallis in 1987. This nursery was used to produce half-sib seed for a recurrent selection experiment (4). The mean seed oil concentration of the LN43 population was 296 g kg⁻¹. The seed oil concentrations of the selected families ranged from 337 to 348 g kg⁻¹. PI 534761 was selected from field tests of 42 wild C. viscosissima accessions grown at Corvallis in 1988 and 1989 (1). The seed oil concentration of PI 534761 was 345 g kg⁻¹. The seed oil concentrations of the other 41 accessions ranged from 273 to 325 g kg⁻¹. The seed oil concentration of PI 574621, a low capric acid line, was 279 g kg⁻¹ (3). This line was selected as one of the parents so that the VL50 population would be segregating for the CPR-1 mutation (2) and lines with increased oil concentration and low capric acid concentration could be developed.

We screened 254 C₀, 290 C₁, and 340 C₂ progeny from the VL50 population in single plant hills in isolated fields at Corvallis in 1991, 1992, and 1993, respectively. The seed oil concentrations of the C₀, C₁, and C₂ populations were 303, 328, and 329 g kg⁻¹, respectively. Open-pollinated seed from the selected progeny (30 per selection cycle) were bulked to create the selected populations (VL50 C₁, C₂, and C₃). VL186 (VL50 C₃) was developed by bulking 20 seeds from each of the selected individuals from the third cycle of selection and was released as a source of diversity for several traits (e.g., biomass, seed yield, and plant height) to seed oil concentration.

Genetic material of VL186 has been deposited in the National Plant Germplasm System. Seed samples are available for research purposes from the corresponding author.

We ask that the source of VL186 be acknowledged when this germplasm is used for germplasm and cultivar development.

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References and Notes


Registration of 96-2052, 96-2058, 96-2068, 96-2198, and 96-2222 Pea Germplasm

Five F₈ breeding lines 96-2052 (Reg. no. GP-90, PI 606695), 96-2058 (Reg. no. GP-87, PI 606695), 96-2068 (Reg. no. GP-89, PI 606696), 96-2198 (Reg. no. GP-90, PI 606698) of pea (Pisum sativum L.) were developed cooperatively and jointly released by the USDA-ARS and the Washington, Idaho, and Oregon Agricultural Experiment Stations in August of 1998.

The parentage of 96-2052 is 86-638 / 79-2022. 86-638 (GP-86, PI 606694) was released in 1989 as an aphanomyces root rot tolerant line. 79-2022 (GP-21) (2) was released in 1981, is semileafless, and is aphanomyces and fusarium root rot tolerant line. 79-2022 (GP-21) (2) was released in 1981, is semileafless, and is aphanomyces and fusarium root rot tolerant line. 79-2022 (GP-21) (2) was released in 1981, is semileafless, and is aphanomyces and fusarium root rot tolerant line. 79-2022 (GP-21) (2) was released in 1981, is semileafless, and is aphanomyces and fusarium root rot tolerant line.

The parentage of 96-2058 is (79-2022 / 74-SN3) // ('Recette' / S.J. KNAPP* AND J.M. CRANE (5)

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