Table 1. Chickpea germplasm exhibited different degrees of resistant to three nematode species (number of entries screened = 600).

M. javanica (MJ)	*P. thorenei* (PT)	*R. reniformis* (RR)	MJ + PT	PT + RR	MJ + PT + RR
ICC 16614	ICC 16614	IPC 96-69	ICC 16614	ICC 6928	IPC 96-68
ICC 6444	ICC 6428	ICC 6928	IPC 96-69	IPC 96-69	
IPC 94-105	ICC 5824				
IPC 96-49	ICC 6825				
IPC 86-98	ICC 6910				
IPC 96-69	ICC 6918				
IPC 96-70	ICC 6928				
	ICC 6938				
	ICC 6956				
	ICC 6950				
	ICC 6953				
	ICC 6962				
	ICC 7962				
	ICC 6983				
	ICC 6990				
	PDE 2				
	IPC 96-67				
7	17	2	2	2	1

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Reference

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L 551 - A New Kabuli Chickpea Cultivar for Punjab State, India

T S Bains[1], J S Sandhu[1], H S Brar[1], M M Verma[1], Jagdish Kumar[2], H A van Rheenen[2,3], P S Phul[1], Sarvjeet Singh[1], R K Goomber[1], T S Sandhu[1], and P S Sidhu[1] (1. Department of Plant Breeding, Punjab Agricultural University (PAU), Ludhiana 141 004, Punjab, India; 2. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, Andhra Pradesh, India; 3. Present address: Department of Crop Protection and Seed Technology, Faculty of Agriculture, Moi University, PO Box 1125, Eldoret, Kenya)

Kabuli chickpea *(Cicer arietinum* L.) gives better financial returns than the *desi* type. Efforts were made in the past to develop a medium bold seeded kabuli gram cultivar L 551 at Punjab Agricultural University, Ludhiana, Punjab, India. Over a period of time the old cultivar of kabuli gram L 550 had become susceptible to Ascochyta blight, fusarium wilt, root rot, and foot rot diseases whereas the new cultivar, L 551, possesses high yield potential and resistance to wilt. It is moderately resistant to Ascochyta blight, which is the most destructive disease of the region. This cultivar was developed from the cross ICCC 32 x ICCX 780581-BH-10H-BH, and was attempted at ICRISAT, Patancheru and its F_2 seeds were supplied to PAU, Ludhiana. Pedigree method was used to evolve this cultivar, which was released in 1999 for cultivation throughout the Punjab state except humid areas.

The yield performance of L 551 from 1989 to 1996 in various varietal trials conducted in the state is given in Table 1. The 51 trials comprise of research varietal trials, agronomic trials, adaptive trials, and frontline demonstrations conducted at different locations in the state. The new cultivar gave an average yield of 1901 kg ha^{-1} against 1625 kg ha^{-1} of control cultivar L 550 and showed 16.9% superiority over the control cultivar. L 551 was also tested in the IVT (*kabuli*) of All India Coordinated Trials during the postrainy season of 1997-98. On the basis of zonal mean, it had occupied the first position in North West Plain Zone (NWPZ) and the second position in Central Zone (CZ). The new cultivar also performed well on farmer's fields. Demonstrations were conducted at

Table 1. Performance of chickpea cultivars L 551 and L 550 in various trials from 1989 to 1996.

Trials	Year(s)	Number of trials	Yield (kg ha^{-1}) L 551	Yield (kg ha^{-1}) L 550	% increase over L 550
Varietal Trials (Research)	1989-90 to 1994-95	15	2363 ± 154	1895 ± 134	24.7
Agronomic Trials (Research)	1993-94 to 1994-95	2	1745 ± 289	1630 ± 269	7.0
Adaptive Trials (Farm Agril. Services, PAU)	1994-95	13	1646 ± 138	1354 ± 89	21.6
Adaptive Trials (Department of Agriculture, Punjab)	1994-95	17	1671 ± 95	1576 ± 70	7.0
Frontline Demonstration	1995-96	4	2056 ± 189	1702 ± 110	20.7
Overall mean		47	1901	1625	16.9

Table 2. Reaction of chickpea cultivars L 551 and L 550 to different diseases at Ludhiana under artificially augmented conditions from 1989 to 1995.

Year	Blight (grade) L 551	Blight (grade) L 550	Wilt (%) L 551	Wilt (%) L 550	Foot-rot (%) L 551	Foot-rot (%) L 550	Root-rot (%) L 551	Root-rot (%) L 550
1989-90	7.0	9.0	8.9	5.0	19.1	5.0	16.2	0.0
1990-91	7.0	9.0	10.1	NT	9.9	NT	10.1	NT
1991-92	8.0	9.0	12.5	21.6	5.4	19.0	5.4	6.69
1992-93	6.0	9.0	9.5	56.1	4.7	21.2	0.0	13.6
1993-94	6.0	9.0	7.1	63.1	7.1	12.1	3.5	8.8
1994-95	5.0	9.0	11.5	50.7	5.6	17.2	5.6	14.9
Mean	6.3	9.0	10.1	41.2	8.2	15.3	6.6	9.8
(Common trials)	(7)	(7)	(7)	(6)	(7)	(6)	(7)	(6)

NT = Not tested.

Table 3. Culinary and nutritional quality of kabuli chickpea cultivars L 551 and L 550[1].

Variety	100-seed mass (g)	Density 12 h (%)	Water absorption 12 h soaking (%)	Volume expansion	Protein (%)	Cooking time (min)
L 551	20.2	1.27	108.4	140.7	23.18	70
L 550	21.5	1.29	104.5	146.2	23.12	75

1. Mean over 3 years.

four locations during the postrainy season of 1995-96. L 551 gave a yield of 2056 kg ha^{-1} against 1702 kg ha^{-1} of L 550 (Table 1).

The disease reaction of L 551 and control cultivar L 550 to Ascochyta blight, wilt, foot rot, and root rot from 1989 is given in Table 2. The average Ascochyta blight score of L 551 was 6.3 against 9.0 for L 550. In 6 years, the incidences of fusarium wilt, foot rot, and root rot were 10.1, 8.2, and 6.6% in L 551 as compared to 41.2, 15.3, and 9.8% in control cultivar L 550, respectively. This means the new cultivar has better resistance to these diseases than the control cultivar. Its culinary and nutritional quality is also good (Table 3). Therefore, the new cultivar offers a better opportunity to the fanners of Punjab.