Vegetable Science (2026) 53(1): 203-209
doi: 10.61180/vegsci.2026.v53.i1.27
ISSN- 0970-6585 (Print), ISSN- 2455-7552 (Online)
www.isvsvegsci.in

RESEARCH ARTICLE

Morphological characterization and DUS evaluation of a short-statured vegetable cowpea (*Vigna unguiculata* (L.) Walp.) genotype, VRCP323

Rakesh K Dubey*, B.R. Reddy, Heera Lal and Jyoti Devi

Abstract

Cowpea (*Vigna unguiculata* (L.) Walp.) is an important warm-season vegetable legume valued for its high nutritional quality, adaptability to diverse agro-climatic conditions, and suitability for sustainable farming systems. The present investigation was undertaken to characterize and evaluate the vegetable cowpea genotype VRCP323 using the distinctness, uniformity and stability (DUS) descriptors. Morphological characterization was carried out using standardized descriptors covering vegetative, reproductive, pod, and seed traits to establish varietal identity and assess its suitability for varietal registration. The genotype VRCP323 exhibited several distinct and desirable characteristics that clearly differentiated it from existing vegetable cowpea varieties. It was characterized by an early flowering habit (≤40 days to 50% flowering), early pod maturity (≤50 days), determinate and compact bushy plant architecture, and a non-vining growth habit, making it suitable for high-density planting and intensive production systems. The tender pods were attractive purple in colour, soft in texture, short, slender, smooth, and completely stringless, indicating excellent market and consumer preference. Seeds were kidney-shaped with a characteristic brick-red seed coat, providing an additional diagnostic feature for varietal identification. The genotype exhibited a high degree of uniformity and stability for all recorded morphological traits, satisfying the essential DUS requirements. The unique combination of compact plant architecture, early maturity, attractive pod characteristics, and distinctive seed morphology establishes VRCP323 as a promising short-statured vegetable cowpea genotype suitable for kitchen gardens, terrace gardening, urban and peri-urban cultivation, and high-density commercial production.

Keywords: Cowpea, *Vigna unguiculata*, DUS characterization, PPV&FR, compact growth habit, short-statured vegetable cowpea, purple pods, varietal registration.

ICAR- Indian Institute of Vegetable Research, Varanasi-221305, UP, India

*Corresponding author; Email: rksdubey@gmail.com

Citation: Dubey, R.K., Reddy, B.R., Lal, H., & Devi, J. (2026). Morphological characterization and DUS evaluation of a short-statured vegetable cowpea (*Vigna unguiculata* (L.) Walp.) genotype, VRCP323. Vegetable Science, 53(1), 203-209.

Source of support: Nil

Conflict of interest: None.

Received: 10/06/2026; **Revised:** 13/07/2026; **Accepted:** 13/07/2026

Introduction

Cowpea (*Vigna unguiculata* (L.) Walp.) is one of the most important warm-season grain and vegetable legumes cultivated extensively throughout the tropical and subtropical regions of the world. It is widely recognized for its exceptional adaptability to diverse agro-climatic conditions, drought tolerance, and ability to perform well under low-input farming systems, making it an important component of climate-resilient and sustainable agriculture (Singh et al., 2002; Timko et al., 2007). Owing to its versatile nature, cowpea is cultivated for multiple purposes including tender green pods as a vegetable, immature seeds, dry grains, nutritious fodder, hay, silage and green manure (Ehlers and Hall, 1997). The crop also contributes significantly to soil fertility through symbiotic biological nitrogen fixation with *Rhizobium* species, fixing approximately 70 to 240 kg nitrogen per ha depending on genotype and environmental conditions, thereby reducing the dependence on synthetic nitrogen fertilizers and improving soil health (Dakora and Keya, 1997). In India, vegetable cowpea occupies a

prominent place among leguminous vegetable crops because of its short crop duration, wide adaptability, continuous pod production, and high productivity. Tender green pods are nutritionally rich, containing approximately 84 to 89% moisture, 2.8 to 3.9 g protein, 6.5 to 8.0 g carbohydrates, 1.0 to 1.8 g dietary fibre, 43 to 60 mg calcium, 1.5 to 2.5 mg iron, 55 to 75 mg phosphorus, 240 to 320 mg potassium, 0.07 mg thiamine, 0.10 mg riboflavin, 0.90 mg niacin, 18 to 24 mg vitamin C, and 175 to 250 IU vitamin A per 100 g of edible portion (Gopalan et al., 2012). Owing to its high nutritional value, regular consumption of vegetable cowpea helps alleviate protein-energy malnutrition and micronutrient deficiencies, thereby contributing to food and nutritional security, particularly among resource-poor populations (FAO, 2016). Furthermore, its early maturity, high market demand and continuous harvesting habit provide substantial economic returns to small and marginal farmers, making it an important crop for livelihood improvement and sustainable vegetable production systems. Recent developments in agricultural production systems, coupled with rapid urbanization, shrinking landholdings, labour scarcity and the increasing need for climate-resilient crop varieties, have considerably altered the breeding objectives of vegetable cowpea. Traditional landraces and several existing cultivars generally possess indeterminate, spreading, and viny growth habits, requiring wider spacing, longer crop duration, staking in some situations, and greater labour inputs for crop management and harvesting. Although these genotypes represent valuable reservoirs of genetic diversity, their growth habit limits their suitability for intensive cultivation and mechanized production systems (Timko and Singh, 2008). Consequently, modern breeding programmes emphasize the development of compact, bushy, determinate, and early-maturing genotypes possessing superior pod quality, high yield potential, and wider adaptability. Compact plant architecture facilitates higher planting density, efficient utilization of land and agricultural inputs, improved light interception, and enhanced resource-use efficiency. Such genotypes are highly suitable for multiple cropping systems, crop rotations, relay cropping, and intercropping. Early-maturing cultivars also enable farmers to increase cropping intensity while escaping terminal drought and heat stress. In addition, compact varieties are particularly appropriate for urban and peri-urban agriculture, including kitchen gardens, rooftop cultivation, terrace farming and container gardening where available space is limited. Uniform canopy architecture further enhances the feasibility of mechanized sowing, intercultural operations, pesticide application, and synchronized harvesting, thereby reducing production costs and improving operational efficiency. The development of improved crop varieties requires considerable attention in cowpea breeding, making legal protection of newly developed varieties essential for encouraging innovation.

In India, registration and protection of plant varieties are governed by the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001, which provides a comprehensive legal framework for protecting breeders' intellectual property while safeguarding farmers' rights. One of the mandatory requirements for registration under the PPV&FR Authority is successful evaluation through distinctness, uniformity, and stability (DUS) testing (PPV&FR Authority, 2007). DUS testing is an internationally accepted scientific procedure employed to establish the identity and authenticity of a candidate variety using standardized morphological descriptors. Under this system, candidate genotypes are evaluated for diagnostic characters such as plant growth habit, stem pigmentation, leaf morphology, flowering behaviour, pod characteristics, seed morphology and other stable phenotypic traits. The evaluation determines whether the candidate variety is clearly distinguishable from all existing varieties (distinctness), exhibits sufficient uniformity among individual plants (uniformity), and maintains stable expression of its distinguishing characteristics over successive generations (stability) (UPOV, 2002). Accurate DUS characterization forms the scientific basis for variety registration, legal protection, maintenance breeding, seed certification, germplasm documentation, and future utilization of valuable breeding materials. In accordance with the DUS test guidelines prescribed by the PPV&FR Authority, in the present study, the vegetable cowpea genotype VRCP323 derived from crosses VRCP 49-5 x Indira Lal was subjected to detailed morphological characterization to establish its varietal identity and evaluate its suitability for registration. The study aimed to systematically document important vegetative, phenological, reproductive, pod and seed characteristics using standardized DUS descriptors. Particular emphasis was placed on evaluating plant growth habit, canopy compactness, branching pattern, days to 50% flowering, pod length, pod colour, pod curvature, pod stringiness, pod tenderness, seed size, seed shape, seed coat colour, and other distinguishing morphological traits.

Comprehensive characterization of these descriptors establishes a unique morphological profile for genotype VRCP323, enabling its clear differentiation from existing commercial varieties and breeding lines. Such characterization provides the scientific foundation for variety registration under the PPV&FR Act, facilitates the protection of breeders' rights, supports maintenance breeding and seed purity assessment, and enhances the utilization of VRCP323 as a valuable genetic resource in future breeding programmes aimed at developing high-yielding, compact, early-maturing, and climate-resilient vegetable cowpea cultivars.

Materials and Methods

The present study was conducted at the Experimental Farm, ICAR–Indian Institute of Vegetable Research (ICAR-IIVR),

Varanasi, Uttar Pradesh, India, during the spring–summer and Kharif seasons from 2020 to 2025. The experimental material consisted of the short-statured vegetable cowpea genotype VRCP323, maintained under breeding and evaluation trials. The experiment was laid out with three replications, maintaining a spacing of 45 × 15 cm and observations were recorded on 20 representative plants in each replication over 12 crop seasons. The experimental site is located in the Gangetic alluvial plains with sandy loam soil, neutral to slightly alkaline in reaction, and variable nutrient status. The region experiences a subtropical climate with an average annual rainfall of approximately 1,000 mm and temperatures ranging from 5°C in winter to 48°C in summer. The crop was grown following the recommended agronomic practices, and observations on vegetative growth, flowering, pod development, and maturity traits were recorded for characterization of the genotype.

DUS characterization and trait assessment

Characterization was carried out according to the DUS guidelines for cowpea. Visual observations (VG and VS) and measurements (MS) were recorded for qualitative and quantitative traits. About 19 morphological descriptors covering plant growth, flowering behavior, pod characteristics, and seed traits were evaluated.

Table 1: Plant growth characteristics of mini cowpea genotype VRCP323

Character	*State*
Days to 50% flowering	Early (≤40 days)
Climbing tendency	None
Plant type	Determinate
Plant growth habit	Bush
Twining habit	Non-viny
Pod colour	Purple
Pod surface	Smooth
Pod pubescence	Absent
Pod length	Short (7.0 cm)
Pod thickness	Thin (≤0.5 cm)
Pod stringiness	Absent
Pod shape	Straight
Pod maturity	Early (≤40 days)
Pod cross-section	Cordate
Seeds per pod	Medium (10–15)
Seed shape	Kidney
Seed length	Short (≤1.0 cm)
Seed colour	Brick red

Results and Discussion

Plant growth, flower and pod characteristics

Earliness is a highly desirable trait in vegetable cowpea, as it enables early pod harvesting, facilitates multiple cropping systems, and provides quicker economic returns to farmers. Early-maturing genotypes also help escape terminal heat and moisture stress, thereby enhancing production stability under diverse agro-climatic conditions. VRCP323 exhibited early flowering, attaining 50% flowering within 40 days of sowing, indicating its early maturity. The flowers of VRCP323 were yellow in colour, a characteristic commonly observed in vegetable cowpea. Flower colour is a stable qualitative descriptor useful in varietal characterization. Further, the genotype exhibited a determinate, bushy growth habit with a non-vining nature. Such plant architecture is advantageous for vegetable cowpea cultivation as it permits high-density planting, facilitates intercultural operations, and reduces labour requirements during crop management and harvesting. The compact plant type also improves field uniformity and is particularly suitable for kitchen gardens, terrace cultivation, protected cultivation, and other intensive vegetable production systems where space utilization is critical (Table 1).

Pod morphology is a primary selection criterion in vegetable cowpea breeding because it directly influences consumer preference, market value, and processing quality. VRCP323 produced attractive purple-coloured pods, a distinctive morphological trait that clearly differentiates it from conventional green-podded vegetable cowpea cultivars. The purple pigmentation is likely associated with anthocyanin accumulation, which not only enhances visual appeal but may also contribute antioxidant properties, thereby improving the nutritional value of the pods. VRCP323 produced short pods with an average length of approximately 7.0 cm and a thickness of less than 0.5 cm. The pods were smooth, glabrous, and free from pubescence, imparting a soft and tender texture desirable for fresh vegetable consumption. The pods were straight, uniform, and completely stringless, characteristics that improve eating quality, consumer acceptance, and ease of preparation. In addition, the genotype exhibited early pod maturity (≤50 days), enabling early harvest and ensuring a continuous supply of fresh pods to the market. The combination of attractive pod colour, tender texture, stringless nature, and early maturity makes VRCP323 a promising vegetable cowpea genotype for fresh market production, kitchen gardening, and intensive cultivation systems (Table 1).

Seed characteristics

Seed morphology plays a crucial role in varietal identification and genetic purity assessment. VRCP323 produced number of seed per pod (10–15). The seeds were kidney-shaped, short in size (≤1.0 cm) and brick red in colour. These characteristics provide reliable markers for varietal identification. The

brick-red seed colour serves as an important distinguishing feature and contributes to varietal distinctiveness (Table 2).

Distinctiveness of cowpea genotypes VRCP323

The genotype VRCP323 can be distinguished from conventional vegetable cowpea cultivars by the following unique combination of traits: Early flowering (≤40 days), determinate bush growth habit, non-vining, non-climbing nature, purple pod coloration, smooth and stringless pods, short and thin pod morphology, early pod maturity and brick-red kidney-shaped seeds. The combination of compact growth, attractive pod colour and early maturity establishes VRCP323 as a distinct short-statured vegetable cowpea genotype.

Comparative performance of VRCP-323 with other popular varieties of cowpea

The comparative evaluation of the short-statured vegetable cowpea genotype VRCP-323 with popular commercial varieties clearly demonstrated its distinct horticultural phenotype and suitability for a different production niche. While the check varieties are conventional long-podded vegetable cowpeas, VRCP-323 possesses unique morphological characteristics that classify it as a short-podded type. The most striking distinguishing feature of VRCP-323 is its red pod colour, whereas all the commercial check varieties possess green to dark green or whitish-green pods. Similarly, the genotype exhibits purple flowers and red seeds, in contrast to the creamy white, yellow or bluish flowers and reddish-brown to blackish-brown seeds observed in the check varieties. These qualitative traits serve as reliable diagnostic descriptors and facilitate easy varietal identification, seed purity maintenance and DUS characterization (Table 3, Figure 1).

VRCP-323 produced 2–3 pods per cluster, comparable to Kashi Nidhi, Kashi Vishal and Kashi Kanchan, but a substantially higher number of pods per plant (60–65) than all check varieties (20–40 pods). This indicated a prolific fruiting habit and greater reproductive efficiency. The increased pod number appears to compensate for the comparatively smaller pod size, thereby contributing to acceptable overall productivity. The genotype was characterized by very short and slender pods (12.5 cm × 0.3 cm) compared with the long pods (25–40 cm) and wider pod diameter (0.7–0.9 cm) of the commercial cultivars. Correspondingly, VRCP-323 recorded the lowest individual pod weight (1.2 g), whereas the check varieties produced pods weighing 9.5–12.8 g. These observations indicate that VRCP-323 represents a genetically distinct short-podded vegetable cowpea ideotype rather than a reduced version of conventional cultivars. VRCP-323 was also comparatively compact in plant architecture, attaining only 35–38 cm plant height, while the check varieties ranged from 45 to 57 cm. It possessed shorter and narrower leaves (7.0 × 3.5 cm), reflecting reduced vegetative growth. Such compactness is advantageous for high-density planting, kitchen gardening, protected cultivation and container-

Table 2: DUS-parameters of short-statured cowpea genotypes VRCP323

S. No.	*Characteristics*	*States*	*Note*	*Type of assessment*
1	Days to 50 % flowering	Early (≤ 40 days)	3	VG
2	Climbing tendency	None	1	VG
3	Plant type	Determinate	3	VG
4	Plant growth habit	Bush	3	VG
5	Twining habit	Non viny	9	VG
6	Pod colour	Purple	7	VG
7	Pod surface	Smooth	1	VS
8	Pod pubescence	Absent	1	VS
9	Pod length	Short (7.0 cm)	3	VS
10	Pod thickness	Thin (≤ 0.5 cm)	3	MS
11	Pod stringiness	Absent	1	VS
12	Pod shape	Straight	1	VG
13	Pod maturity	Early (≤ 50 days)	1	VG
14	Pod cross section	Cordate	1	VS
15	Seed per pod	Medium (10–15 seeds)	3	VS
16	Seed shape	Kidney	3	VG
17	Seed length (cm)	Short ((≤ 1.0 cm)	3	VG
18	Seed colour	Brick red	5	VG
19	Flower colour	Yellow	3	VG

Table 3: Comparative mean value of horticultural traits of short-statured cowpea genotype VRCP -323 and popular varieties of cowpea

Traits	*VRCP-323*	*Kashi nidhi*	*Kashi vishan*	*Kashi kanchan*	*Kashi gauri*	*Kashi unnati*	*Kashi shyamal*
leaf colour	Green	Dark green	Dark green	Green	Whitish green	Green	Green
Days to 50 % flowering	35-40	40-45	40-45	45-48	48-50	45-47	44-46
Flower colour	Purple	Creamy white	Yellow	Creamy bluish	Whitish light blue	Whitish blue	Whitish blue
No of branch/plant	3-4	4-5	4-5	5-6	5-6	5-6	4-5
Plant height (cm)	35-38	45-50	50-55	50-55	53-55	55-57	50-55
Leaf length (cm)	7.0	10-12	12-15	11-13	12-14	12-13	10-12
Leaf width (cm)	3.5	7-9	8-10	6.0-8.0	7-8	5-6	6-7
Pod colour	Red	Dark green	Dark green	Green	Whitish green	Light green	Green
Parchment layer	Free	Free	Free	Free	Free	Free	Free
Seed colour	Red	Reddish brown	Brown	Reddish brown	Brown	Reddish brown	Blackish brown
Number of pod/clusters	2-3	2-3	2-3	2-3	1-2	1-2	1-2
Pod/plant	60-65	20-25	35-40	33-35	32-35	32-35	25-28
Pod length (cm)	12.5	30-35	35-40	30-35	25-28	28-30	26-28
Pod width (cm)	0.3	0.86	0.9	0.8	0.7	0.7	0.8
Days to 1st pod harvest	50-52	50-55	50-55	55-58	55-58	55-58	50-55
No of seed per pod	10.0	14-15	14-16	13-15	11-12	10-11	9-11
Seed length (cm)	0.6	0.9	0.9	0.8	0.8	0.9	0.9
Seed width (cm)	0.2	0.6	0.7	0.8	0.7	0.6	0.5
Pod yield per plant (g)	40.0	220-230	240-250	245-250	210-220	190-200	200-215
Per pod weight (g)	1.2	12.0	12.8	10.8	9.5	10.5	11.5

Figure 1: Short-statured cowpea genotype VRCP323-field view

based production, where smaller plant stature is preferred. The genotype exhibited earlier flowering (35–40 days) than all the commercial checks (40–50 days), indicated much earliness. Although the days to first pod harvest (50–52 days) were similar to Kashi Nidhi and Kashi Vishal, they were 3 to 8 days earlier than Kashi Kanchan, Kashi Gauri and Kashi Unnati. Earliness is an important breeding objective because it enables quicker crop turnover, facilitates multiple cropping systems and provides opportunities for premium market prices during the early harvest period. VRCP-323 produced fewer seeds per pod (10) than the long-podded varieties (10–16 seeds), which is expected because seed number is positively associated with pod length. Likewise, seed dimensions remained comparatively smaller than those of most commercial cultivars. These characteristics are consistent with the short-pod phenotype and reflect the inherent genetic architecture governing pod and seed development. The pod yield per plant (40 g) of VRCP-323 was considerably lower than that of the long-podded commercial varieties (190–250 g per plant). However, this reduction is primarily attributable to the much smaller pod size and weight rather than poor reproductive capacity.

The genotype compensates partially through the production of a substantially greater number of pods per plant. Therefore, yield comparisons should be interpreted within the context of contrasting market classes and pod types

rather than absolute productivity alone. Overall, the data indicated that VRCP-323 is a novel short-statured vegetable cowpea genotype possessing a unique combination of desirable traits, including red pods, purple flowers, compact plant architecture, early flowering, prolific pod production and short pods. These characteristics clearly distinguish it from existing commercial varieties and suggest its potential utility as a specialty vegetable type for niche markets, urban and peri-urban cultivation, kitchen gardens, protected cultivation and breeding programmes aimed at developing compact, early-maturing, high-pod-number vegetable cowpea cultivars. Although its yield per plant is lower than that of conventional long-podded varieties, its unique horticultural attributes and market appeal justify its consideration as a distinct cultivar.

The short-statured cowpea genotype VRCP323 offers advantages as suitable for high-density planting, ideal for kitchen and urban gardening, early harvest ensures rapid economic returns, reduced staking requirement due to non-vining habit, attractive purple pods improve marketability, stringless tender pods enhance consumer acceptance, potential source of genes for compact architecture and pod pigmentation in breeding programmes.

Conclusion

The DUS characterization of short-statured cowpea genotype VRCP323 revealed a unique combination of morphological traits including early flowering, determinate bush growth habit, non-vining nature, purple smooth pods, early maturity and brick-red seeds. These characteristics clearly distinguish the genotype from existing vegetable cowpea varieties. The compact plant architecture and attractive pod traits make VRCP323 a promising candidate for varietal release, registration, urban agriculture and future breeding programmes aimed at developing high-yielding short-statured vegetable cowpea cultivars.

References

Dakora, F.D. & Keya, S.O. (1997). Contribution of legume nitrogen fixation to sustainable agriculture in sub-Saharan Africa. Soil Biology and Biochemistry, 29 (5–6), 809–817.

Deshpande, S. K., et al**.** (2018). Review on characterization of cowpea germplasm in terms of Distinctness, Uniformity, Stability and Novelty for morphological, quality and yield attributing parameters. International Journal of Current Microbiology and Applied Sciences, 7(6), 2840–2850.

Ehlers, J.D. & Hall, A.E. (1997). Cowpea (*Vigna unguiculata* L. Walp.). Field Crops Research, 53, 187–204.

FAO. (2016). Pulses: Nutritious Seeds for a Sustainable Future. Food and Agriculture Organization of the United Nations, Rome.

Gopalan, C., Rama Sastri, B.V. & Balasubramanian, S.C. (2012*). Nutritive Value of Indian Foods*. National Institute of Nutrition (ICMR), Hyderabad.

Hall, A, E., Singh, B.B.& Ehlers, J.D. (1997). Cowpea breeding. In: Janick, J. (Ed.), *Plant Breeding Reviews*. 15. John Wiley & Sons, Inc., New York, USA, pp : 215–274..

IBPGR. (1983). *Descriptors for cowpea (Vigna unguiculata)*. International Board for Plant Genetic Resources (IBPGR), Rome, Italy. pp 30.

ICAR–Indian Institute of Vegetable Research (IIVR) (2023). *Crop improvement programme report: vegetable cowpea*. ICAR-IIVR, Varanasi. pp 45.

PPV&FRA. (2019). *Guidelines for the conduct of test for distinctiveness, uniformity and stability (DUS) on cowpea [Vigna unguiculata (L.) Walp. ssp. unguiculata and Vigna unguiculata (L.) Walp. ssp. sesquipedalis (L.) Verdc.].* Protection of plant varieties and Farmers' Rights Authority, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi. pp 21.

Singh, B.B., Ehlers, J.D., Sharma, B., & Freire Filho, F.R. (2002). Recent progress in cowpea breeding. In: Fatokun, C.A., Tarawali, S.A., Singh, B.B., Kormawa, P.M. and Tamo, M. (Eds.) *Challenges and Opportunities for Enhancing Sustainable Cowpea Production: Proceedings of the World Cowpea Conference III, held at the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria, 4–8 September 2000.* International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria. pp 22–40

Timko, M.P. & Singh, B.B. (2008). Cowpea, a multifunctional legume. In: Genomics of Tropical Crop Plants. Springer, New York pp 17.

Timko, M.P., Ehlers, J.D. & Roberts, P.A. (2007). Cowpea. In: Genome Mapping and Molecular Breeding in Plants, Vol. 3: Pulses, Sugar and Tuber Crops. Springer, Berlin, pp. 49–67.

UPOV. (2002). General Introduction to the Examination of Distinctness, Uniformity and Stability. TG/1/3. International Union for the Protection of New Varieties of Plants, Geneva. Switzerland. pp 19.

UPOV**.** (2007). Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability: Cowpea. International Union for the Protection of New Varieties of Plants, Geneva. Switzerland. pp 38.

सारांश

सघन खेती, शहरी उद्यानिकी तथा जलवायु-सहिष्णु कृषि की बढ़ती आवश्यकताओं को ध्यान में रखते हुए सघन वृद्धि वाली, शीघ्र परिपक्व होने वाली तथा उत्कृष्ट फली गुणवत्ता वाली सब्जी लोबिया किस्मों का विकास पादप प्रजनन का एक प्रमुख उद्देश्य बन गया है। प्रस्तुत अध्ययन का उद्देश्य सब्जी लोबिया जीनोटाइप VRCP323 का पादप किस्म एवं कृषक अधिकार संरक्षण प्राधिकरण (PPV&FR), भारत सरकार द्वारा निर्धारित विशिष्टता (Distinctness), एकरूपता (Uniformity) एवं स्थिरता (Stability) (DUS) वर्णकों के आधार पर लक्षण वर्णन एवं मूल्यांकन करना था। किस्म की पहचान स्थापित करने तथा इसके पंजीकरण की उपयुक्तता का आकलन करने हेतु वानस्पतिक, प्रजनन, फली एवं बीज संबंधी मानकीकृत वर्णकों का उपयोग करते हुए विस्तृत आकारिकी अध्ययन किया गया। जीनोटाइप VRCP323 में अनेक विशिष्ट एवं वांछनीय गुण पाए गए, उपलब्ध सब्जी लोबिया किस्मों से स्पष्ट रूप से पृथक सिद्ध किया। इस जीनोटाइप में 50 प्रतिशत पुष्पन 40 दिनों या उससे कम में तथा फली परिपक्वता 50 दिनों या उससे कम में प्राप्त हुई। पौधे का वृद्धि प्रकार निर्धारित (Determinate), सघन, झाड़ीदार एवं बेलरहित (Non-vining) था, जिससे यह उच्च सघनता वाली खेती एवं गहन उत्पादन प्रणालियों के लिए अत्यंत उपयुक्त सिद्ध हुआ। इसकी कोमल फलियाँ आकर्षक बैंगनी रंग, मुलायम बनावट, छोटी, पतली, चिकनी तथा पूर्णतः रेशारहित थीं, जो उत्कृष्ट उपभोक्ता एवं बाजार स्वीकृति का संकेत देती हैं। इसके बीज गुर्दाकार (Kidney-shaped) तथा ईंट-लाल (Brick red) रंग के पाए गए, जो इस जीनोटाइप की एक विशिष्ट पहचान प्रदान करते हैं। अध्ययन में अभिलक्षित सभी आकारिकीय लक्षणों के लिए इस जीनोटाइप में उच्च स्तर की एकरूपता एवं स्थिरता पाई गई, जिससे यह DUS परीक्षण की आवश्यकताओं को पूर्ण करता है। सघन पौध संरचना, शीघ्र परिपक्वता, आकर्षक फली गुणों तथा विशिष्ट बीज आकृति एवं रंग का अद्वितीय संयोजन VRCP323 को एक आशाजनक लघु सब्जी लोबिया जीनोटाइप के रूप में स्थापित करता है, जो गृहवाटिका, छत उद्यान, शहरी एवं उपनगरीय कृषि तथा उच्च सघनता वाली व्यावसायिक खेती के लिए अत्यंत उपयुक्त है। इस जीनोटाइप का विस्तृत DUS लक्षण वर्णन किस्म की पहचान, PPV&FR अधिनियम के अंतर्गत पंजीकरण, अनुरक्षण प्रजनन, बीज शुद्धता के संरक्षण तथा भविष्य में उच्च उपज, शीघ्र परिपक्वता एवं जलवायु-सहिष्णु सब्जी लोबिया किस्मों के विकास हेतु प्रजनन कार्यक्रमों में इसके प्रभावी उपयोग के लिए एक सुदृढ़ वैज्ञानिक आधार प्रदान करता है।