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Short Communication

# EVALUATION OF FEMALE CLONES OF POINTED GOURD

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**Sixty four famale clones of pointed gourd (*Trichosanthes dioica* Roxb.) collected from parts of Bihar and West Bengal showed wide range of variation in vine length, leaf length/breadth, fruit length, fruit girth, fruit weight, pericarp thickness, number of fruits/plant and fruit yield per plant. Some promising clones included IC66-1, IC63-1, IC50-4, IC64-2, IC97-2 and IC34-4.**

Key words : Pointed gourd, *Trichosanthes dioica*, dioecious, female clone, evaluation

The pointed gourd, *Trichosanthes dioica* Roxb., locally called 'parwal' or 'patal' is an important cucurbitaceous vegetable crop extensively cultivated in India particularly in West Bengal, Bihar, eastern Uttar Pradesh, Assam and Tripura. It is dioecious and vegetatively propagated perennial cucurbit. The female clones, though highly heterozygous in nature are perpetuated uniformly through clonal propagation. However, sexual reproduction results segregation and recombination producing new gene combination. The seedlings, differing from the parent in genotype and phenotype is established as distinct clone and remain in the cultivar population as a mixture. Thereby, great deal of variation in the clones is created. However, wide variation in pointed gourd is being continuously eroded mainly because of over-dependence of very few indigenous cultivars for commercial cultivation.

Sixty eight female clones of pointed gourd were assembled through extensive collections from major pointed gourd areas of West Bengal and some parts of Bihar. These clones were grown in Horticultural Research Station, Bidhan Chandra Krishi Viswavidyalaya, Mondouri in 1996-97 for grouping based on fruit shape and size. The clonal population fell under four broad groups namely, small fruited (less fruit length and girth) group, spindle shaped fruit, oval fruit and nearly cylindrical fruit. Fruit shape of the small group was mostly oval but spindle and tapering shapes were also there. Fruits of all the clones belong to four basic colour : dark green with white stripes, dark green with faint pale green stripes, pale green with inconspicuous stripes and palegreen with lines in place of stripes.

These 68 female clones (belonging to 4 groups) were evaluated separately for growth and fruit characters and yield in randomised block designs with three replications in 1997-98 (Oct.-August) at Mondouri under new alluvial agroclimatic zone. The soil type is loamy in nature. The clones were grown from vine cuttings using ring method of planting. Each replication consisted of five plants in 3 × 3m beds. Male plants were kept at the rate of 10 per cent in the population for ensuring successful fruit set. Three random plants in each replication of the clones were tagged and data were recorded. Five fully grown leaves per selected plant were sampled

**Table 1. Diversity for growth and fruit characters in pointed gourd clones**

| Character | | No. of clones | Frequency (%) |
|---|---|---|---|
| 1. | Vine length (cm) | | |
| | Short (< 100) | 12 | 17.6 |
| | Medium (< 200) | 40 | 58.8 |
| | Long (< 300) | 11 | 16.2 |
| | Very long (> 300) | 5 | 7.3 |
| 2. | Node number to first flower | | |
| | Early (< 10) | 25 | 36.7 |
| | Medium (< 15) | 29 | 42.6 |
| | Late (> 15) | 14 | 20.5 |
| 3. | Fruit shape | | |
| | Spindle[1] | 26 | 38.2 |
| | Oval[2] | 20 | 29.4 |
| | Tapering towards end[3] | 4 | 5.8 |
| | Nearly cylindrical | 18 | 26.4 |
| 4. | Fruit length (cm) | | |
| | Small (< 6) | 21 | 30.8 |
| | Medium (< 8) | 44 | 64.7 |
| | Long (> 8) | 3 | 4.4 |
| 5. | Fruit weight (g) | | |
| | Light (< 15) | 7 | 10.2 |
| | Medium (< 30) | 50 | 73.5 |
| | Heavy (> 30) | 11 | 16.1 |
| 6. | Pericarp thickness (cm) | | |
| | Thin (< 0.3) | 39 | 57.3 |
| | Medium (< 0.5) | 22 | 32.3 |
| | Thick (> 0.5) | 7 | 10.2 |
| 7. | Fruit yield/plant (g) | | |
| | Low (< 450) | 23 | 33.8 |
| | Medium (< 650) | 21 | 30.8 |
| | High (< 850) | 12 | 17.6 |
| | Very high (> 850) | 12 | 17.6 |

1. Small sized fruit (less length and girth) in 4 clones,
2. Small sized fruit in 7 clones
3. Small sized fruit in all the clones

to record leaf characters. Five tagged fruits of 12 days old from each selected plant per replication were employed to record fruit characters. Fruit yield was the cumulation of all the periodical harvests at marketable maturity.

The clones showed wide range of variations for all the characters revealing under scope for clonal selection. The range of variations considering all the 68 clones irrespective of the groups for the characters observed in vine length (83.3-536.9 cm), node number to bear the first flower (5.5-24.3), leaves per plant (13.6-69.3), leaf length (4.7-8.5 cm), leaf breadth (5.0-8.4 cm), fruit length (3.3-9.3 cm), fruit girth (6.1-11.6 cm), fruit volume (14.0-59.8 c.c), fruit weight (14.2-45.9 g), pericarp thickness (0.27-0.94 cm), seed number per fruit (4.9-17.7), fruits per plant (9.6-50.2) and fruit yield per plant (201.2-1395.3 g). Frequency distribution of the clonal collections in relation to some characters are presented in Table 1. Vine length of most of the clones was medium (1-2 m). A good percentage of clones (36.7) showed early flowering habit. Prevalent fruit shape was spindle. Most of the clones bore fruits of medium length (6-8 cm) at perfect picking stage (12 days after anthesis). Long fruits were borne on very few clones. There revealed preponderance of medium weight (15-30 g) fruits. Thick pericarp which is an excellent quality trait was shown by seven clones. Low and medium yielding clones together accounted for 64 per cent. Very high yielding clones identified were IC-66-1, 1C-63-1, 1C-40-5, 1C-61-5, 1C-16-1, 1C-37-4, 1C-50-4, 1C-50-2, 1C-20-1, 1C-64-2, 1C-97-2 and 1C-34-4.