



Performance of fenugreek (*Trigonella foenum-graecum* L.) genotypes under new alluvial zone of West Bengal

S Datta & R Chatterjee¹

Department of Vegetable and Spice Crops
Uttar Banga Krishi Viswavidyalaya
Pundibari, Cooch Behar – 736 165, West Bengal, India
E-mail: suchanddatta@rediffmail.com

Received 17 April 2004; Revised 21 June 2004; Accepted 16 July 2004

Abstract

Eight fenugreek (*Trigonella foenum-graecum*) genotypes namely, RMt-1, Rajendra Kranti, J. Fenu-195, HM-350, HM-346, Pusa Early Bunching, RMt-143 and UM-303 were evaluated against local cultivar for growth, yield and incidence of root rot disease at Mondouri under the new alluvial zone of West Bengal. All characters, except primary branches plant⁻¹ showed significant variation. Among the different genotypes, Rajendra Kranti exhibited superiority in terms of seed yield (10.67 q ha⁻¹). Pusa Early Bunching was resistant to root rot disease.

Key words: fenugreek, root rot disease, *Trigonella foenum-graecum*, yield.

Fenugreek (*Trigonella foenum-graecum* L.) is mostly grown in the western region in India though the agro-climatic conditions of new and old alluvial zones and laterite zone of West Bengal are also suitable to grow the crop. However, information on the performance of various genotypes in this region is lacking. Hence, the present experiment was undertaken to evaluate the performance of fenugreek genotypes and select suitable ones for cultivation in the new alluvial zone of West Bengal.

Eight fenugreek genotypes namely, RMt-1, Rajendra Kranti, J. Fenu-195, HM-350, HM-346, Pusa Early Bunching, RMt-143 and UM-303 were collected from various Research Stations (RMt-1 and RMt-143 from Gujarat Ag-

ricultural University, Gujarat; Rajendra Kranti, J. Fenu-195, HM-350, HM-346 and UM-303 from Rajendra Agricultural University, Dholi, Bihar; and Pusa Early Bunching from Indian Agricultural Research Institute, New Delhi) and compared with local cultivar at Horticulture Research Station, Bidhan Chandra Krishi Viswavidyalaya, Mondouri (West Bengal) during 2000 and 2001. The experiment was laid out in a randomized block design with three replications in a plot size of 3.0 m x 1.6 m with a spacing of 30 cm x 20 cm under irrigated conditions. Farm yard manure @ 20 t ha⁻¹ and NPK @ 30:40:30 kg ha⁻¹ were applied. Morphological and yield characters were recorded on 10 randomly selected plants from each plot. Yield, time taken for

¹Department of Spices and Plantation Crops, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia – 741 252, West Bengal, India.

flowering, maturity and disease incidence were recorded per plot basis.

All the characters except number of primary branches plant⁻¹ showed significant variation among the different genotypes under study (Table 1). The genotype RMT-143 (53.7 cm) recorded maximum plant height which was on par with HM-346, HM-350, J. Fenu-195 and RMT-1. In the case of secondary branches plant⁻¹, Pusa Early Bunching (11.5) showed its superiority which was significant. The maximum number of leaves plant⁻¹ was recorded in Rajendra Kranti (108.33) which was significant. Banafar & Nair (1992) reported higher number of primary branches plant⁻¹ as compared to the present study which might be due to the different genotypes evaluated and agroclimatic conditions.

The time taken for flowering was minimum in local genotype (50.67 days) which was on par with UM-303 and was maximum in Pusa Early Bunching (72.67 days) which was significant. Rajendra Kranti took minimum time (107.67 days) to mature which was significant and represented a short duration genotype. Maximum number of pods plant⁻¹ was recorded in Pusa Early Bunching (41.5) which was on par with Rajendra Kranti, whereas maximum pod length was noticed in HM-346 which was significantly different from others.

Maximum number of seeds pod⁻¹ was recorded in RMT-1 (14.0) which was on par with HM-346 and Rajendra Kranti. Rao (2001) recorded that number of seeds plant⁻¹ varied from 10.9 to 14.5 which is more or less similar to the findings of the present study.

Pusa Early Bunching was resistant to root rot disease whereas Local Cultivar and Rajendra Kranti were moderately resistant.

Among the genotypes, Rajendra Kranti produced significantly higher seed yield (10.67 q ha⁻¹). RMT-1 and HM-350 also recorded significantly higher yield than the local cultivar. Though Pusa Early Bunching produced maximum number of branches and pods plant⁻¹, the yield was lower as compared to some

Table 1. Evaluation of fenugreek genotypes for morphological characters, yield and incidence of root rot disease

| Genotype | Plant height (cm) | Primary branches plant ⁻¹ | Secondary branches plant ⁻¹ | No. of leaves plant ⁻¹ | Time taken to flowering (days) | Time taken to maturity (days) | No. of pods plant ⁻¹ | Pod length (cm) | No. of seeds pod ⁻¹ | Seed yield (q ha ⁻¹) | Reaction to root rot |
|---------------------|-------------------|--------------------------------------|--|-----------------------------------|--------------------------------|-------------------------------|---------------------------------|-----------------|--------------------------------|----------------------------------|----------------------|
| RMT-1 | 50.93 | 6.27 | 7.23 | 94.33 | 57.67 | 116.33 | 33.77 | 11.39 | 14.00 | 9.33 | S |
| Rajendra Kranti | 47.93 | 6.60 | 7.57 | 108.33 | 60.33 | 107.67 | 37.07 | 12.42 | 13.80 | 10.67 | MR |
| J. Fenu-195 | 52.00 | 6.40 | 6.87 | 84.93 | 64.00 | 115.67 | 26.67 | 11.88 | 13.75 | 6.44 | HS |
| HM-350 | 51.53 | 6.67 | 7.47 | 91.97 | 58.00 | 114.33 | 34.43 | 11.30 | 12.33 | 8.56 | MS |
| HM-346 | 53.07 | 6.27 | 7.67 | 86.00 | 56.00 | 113.00 | 27.43 | 13.58 | 13.92 | 5.94 | HS |
| Pusa Early Bunching | 40.27 | 7.57 | 11.50 | 83.20 | 72.67 | 130.33 | 41.50 | 10.20 | 10.13 | 7.07 | R |
| RMT-143 | 53.70 | 6.03 | 6.97 | 86.03 | 58.00 | 121.33 | 26.80 | 11.86 | 12.21 | 7.41 | MR |
| UM-303 | 48.37 | 6.17 | 7.27 | 86.03 | 53.33 | 119.00 | 26.57 | 11.39 | 12.72 | 8.28 | S |
| Local | 46.80 | 5.87 | 6.60 | 82.27 | 50.67 | 120.67 | 23.40 | 10.43 | 11.35 | 7.04 | MR |
| SEM ± | 1.21 | 0.46 | 0.35 | 3.61 | 1.11 | 1.34 | 1.24 | 0.22 | 0.29 | 0.35 | - |
| CD (P=0.05) | 3.64 | NS | 1.05 | 10.82 | 3.33 | 4.02 | 3.72 | 0.66 | 0.87 | 1.05 | - |

S=susceptible; HS=highly susceptible; MS=moderately susceptible; R=resistant; MR=moderately resistant

other genotypes as number of seeds pod⁻¹ and number of leaves plant⁻¹ were less. Higher seed yield of Rajendra Kranti might be due to higher number of leaves, seeds plant⁻¹, pods plant⁻¹ and seeds pod⁻¹, though it was on par with RMt-1, the highest seeds pod⁻¹ producing genotype. Better expression of physiological parameters is closely associated with higher seed yield of fenugreek (Banafar 2000). Rajendra Kranti also showed moderate resistance to root rot disease. All these characters favoured Rajendra Kranti to perform as the best genotype under the new alluvial zone of West Bengal.

Rajendra Kranti, RMt-1, HM-350 and UM-303 recorded 51.6%, 32.5%, 21.6% and 17.6% higher yield as compared to local cultivar. Hence,

there is ample scope to raise the productivity of fenugreek by replacing the local cultivar with these genotypes in this region.

References

- Banafar R N S 2000 Study of the analytical growth parameters and productivity of different genotypes of methi (*Trigonella foenum-graecum* L.). Gujarat Agric. Univ. Res. J. 25 (2) : 24-26.
- Banafar R S & Nair P K R 1992 Varietal performance of fenugreek under Jabalpur condition. Indian Cocoa Arecanut Spices J. 16 : 19-20.
- Rao N H P 2001 Performance of fenugreek genotypes under Krishna-Godavari agro-climatic condition of Andhra Pradesh. Spice India 14 (5) : 10-11.