in GN_{19}. The fruit shape was ovate in GN_1, GN_3 and GN_5, oblong in GN_2, GN_6, GN_7 and GN_{12} and ovate oblong in GN_4 and GN_{19}. The flavour of the fruit was good in GN_1 and GN_7 and pleasant in the remaining strains. Overall, GN_3, GN_5, GN_{12} and GN_{19} have shown promise under the local conditions.

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Evaluation of *Sesbania* Germplasm for Some Green Manuring Traits

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Key words: *Sesbania*, Green Manuring, Nodules, Biomass

Sesbania popularly known as *dhaincha* is the most common green manuring crop in the tropical cropping system. It belongs to family Leguminosae and sub-family Papillionaceae. It is a large genus, comprises of about 24 species distributed all over the tropics of the world. *Sesbania aculeata* (*S. bispinosa*) is the most common among them in India. *Sesbania rostrata*, a species endemic to West Africa possesses nitrogen-fixing nodules on the stem in addition to root nodules. Potential of *Sesbania* as green manure crop has been demonstrated by many workers (Rinaudo *et al.*, 1983; Abrol and Palaniappan, 1988; Ramani *et al.*, 1990; Joshua *et al.*, 1992; Ladha *et al.*, 1993). There is a great need to develop suitable varieties of *Sesbania* which can fit well in different cropping system. Importance of germplasm in crop improvement is well recognized, therefore, present study has been undertaken to evaluate and characterize the 23 accessions of *Sesbania* germplasm for some green manuring traits.

A total of 23 accessions of *Sesbania* comprising nine accessions of *S. rostrata* and 14 accessions of *S. aculeata* were grown during *Kharif* season of 2000 at six locations *viz.* New Delhi, Hisar, Pantnagar, Faizabad, Modipuram, and Samastipur. The entries were sown in a randomized block design having three replications. Each plot consisted of 4 m^2 area with row to row spacing of 45 cm and plant to plant 15 cm. The recommended agronomic practices were followed to raise a good crop. The observations were recorded on green manuring traits like plant height, nodules/plant, weight of nodules/plant and green biomass at 45 days of sowing (45 DAS) and other agro-morphological traits like pods/plant, 100-seed weight and seed yield/plant.

Among two species studied, *S. rostrata* (EC178342, EC213472, EC-95553, EC218472, EC223312, 250626, EC331970 and EC331973) possessed nodules on the stem. Wide variability was recorded in number and size of aerial nodules. Highest number of nodules was

Table 1. List of exotic and indigenous germplasm of *Sesbania*

Place of collection/country of introduction	Accession numbers
IRRI, Philippines	EC-331970, EC-331973, EC-95553 EC-218472, EC-223312, EC-250626, EC-178342, EC-213473, EC-213472A
India: Punjab, Himachal Pradesh, Uttaranchal, U.P., Haryana, Gujarat, Bihar, Karnataka, New Delhi	IC-75624, IC-277782, IC-277783 IC-277784, IC-277785, IC-277786, IC-277787, IC-277788, IC-277789, IC-277790, IC-277793 IC-277795 IC-277791, Pant sesbania

observed in EC-178342 closely followed by EC-218472. Plants having stem nodules had a lower number of root nodules.

Wide range and high coefficient of variability in number of root nodules/plant (24.07-73.82) and weight of root nodules/plant (137.50-266.90 mg/plant) indicated that further selection could improve the genotypes for these traits. IC-277787 possessed the highest number of nodules/plant while green biomass was maximum in IC-277782 followed by IC-277783.

Plant vigour and fresh weight are direct indicator of biomass accumulation. Moderate coefficient of variability was observed in plant height and green biomass, which suggested that there is scope for improvement of these traits. High plant vigour coupled with high plant height at 45 DAS was observed in EC-213472A and highest weight of nodules/plant was found in IC-277788.

Table 2. Mean, range and coefficient of variation (CV%) for some green manuring traits in *Sesbania*

Characters	Mean	Range	CV%
No. of nodules/plant at 45 DAS*	47.22	24.07-73.82	29.78
Weight of nodules (mg/plant) at 45 DAS*	814.15	137.50-266.90	71.33
Plant height (cm) at 45 DAS	79.93	58.17-102.60	18.37
Green weight/plant (g) (45 DAS)*	68.08	43.75-102.00	23.02
No. of pods/plant	99.55	62.00-140.47	23.25
Seed yield/plant (g)	38.82	23.51-59.86	22.00
100-Seed weight (g)	1.88	1.57-2.20	10.28

* DAS – Days after sowing

Green biomass at 45 DAS showed high variability (58.17-102.60 g/plant). Yield and yield contributing traits like number of pods/plant (62.00-140.47), 100 seed weight (1.57-2.20g) and yield per plant (23.51-59.86g) showed medium to high co-efficient of variability, indicated that there is some scope for selection of these characters. High number of pods and seed yield/plant was found in IC-277787 and 100-seed weight in IC-277795.

In the present study, high to moderate variation was observed for number and weight of nodules, green biomass and yield contributing characters and thus further selections may be made to improve these traits. The accessions possessing desirable green manuring traits may be utilized for developing varieties through direct selection or through breeding programmes.

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