

Performance and Quality Parameters of Some Selected Local Ginger Genotypes under Terai Zone of West Bengal

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Abstract

The study was conducted to evaluate the performance of six popular local ginger genotypes of six districts of North Bengal to estimate some quality parameters of their rhizome. The study reveals that the Selection-2 was highest in yield. But Selection-5 is suitable for cultivation for making dried and bleached ginger as it possesses highest dry matter content and lowest crude fiber content with comparatively higher yield. For extraction of oleoresin Selection-4 is most suitable for its highest oleoresin content. Having comparatively higher yield, less fiber content and moderately higher oleoresin content Selection-I is suitable for cultivation for fresh consumption and pickle making.

Key words : Ginger, Genotypes, Growth, Yield, Quality.

Ginger (*Zingiber officinale* Rosc.) is one of the most important spices cultivated throughout India. It is herbaceous perennial with underground modified stem (rhizomes) which are used both as spice and medicine. India is the largest producer and exporter of ginger. During 2005—2006 India produced 391.2 thousand tones of ginger from 110.6 thousand ha area. In West Bengal ginger cultivation is not such extended as in Kerala, Meghalaya, Orissa and Sikkim. It is mainly due to the unavailability of high yielding disease resistant planting materials which is lower in fiber content but rich in oleoresin and essential oil. Also there are no such processing units for ginger in West Bengal. Farmers generally use the rhizomes of local types for planting. But only few of them are high yielding and having proper quality for processing. From these perspectives few popular local ginger genotypes were taken for study to assess their potentiality for different purposes.

Methods

Six ginger genotypes were separately collected from six different districts of North Bengal like Darjeeling, Jalpaiguri, Cooch Behar, Uttar Dinajpur, Dakshin Dinajpur and Malda and were named as Selection-1, Selection-2 and so on respectively. The

genotypes were cultivated on the farmer's field nearer to the Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar during 2005—2006 following the uniform standard agronomic practices including plant protection measures. The planting of rhizomes were done in raised beds in a plot size of 3 m × 1 m and spacing of 45 cm × 20 cm. To evaluate them randomized block design with three replications for each unit was followed. Observations on plant growth characters, yield and quality (dry matter content, crude fiber content, oleorsin content and ash content) were recorded. Several analyses were conducted following standard methods (1). The data was statistically analyzed as suggested by Gomez and Gomez (2).

Results and Discussion

Table 1 shows that significantly highest number of tillers per plant (6.73) was recorded in Selection-1. Mean shoot height varied from 33.80 to 47.83 cm and Selection-4 was statistically highest plant. The highest number of tillers (10.24) per plant and highest plant height (39.36 cm) were reported by Dayakanti and Sulikeri (3). Pruthi (4) reported the average number of tillers per plant generally ranges from 3.0 to 10.5 and mean shoot height ranges from 30.7 to 56.6 cm among different varieties of ginger. In the present investiga-

Table 1. Comparison of different ginger genotypes on their performance and quality.

Geno- types	Average number of tillers/ plant	Mean shoot height (cm)	Mean weight of rhizome (g)	Yield (t/ha)	Dry matter content (%)	Oleoresin content (%)	Crude fiber content (%)	Ash content (%)
Sel-1	6.73	37.03	150.50	9.23	14.50	5.23	5.20	4.63
Sel-2	5.43	43.73	126.13	10.16	19.63	4.43	6.13	6.00
Sel-3	4.76	43.20	116.00	8.50	21.00	4.90	6.56	7.23
Sel-4	3.86	47.83	90.86	7.63	18.16	6.20	7.36	5.30
Sel-5	6.10	35.43	136.16	8.13	22.16	3.90	4.23	7.93
Sel-6	3.33	33.80	73.20	7.20	16.36	5.30	7.83	6.70
SE ±	0.26	1.20	3.84	0.29	0.29	0.13	0.16	0.14
CD at 5%	0.59	2.67	8.57	0.66	0.65	0.30	0.36	0.31

tion the mean weight of rhizomes were noted from 73.20 to 150.50 g and Selection-1 is significantly highest in this regard. The result is similar to the report of CSIR (5). The present result reveals that significantly highest yield (10.16 t/ha) obtained from Selection -2 and it was lowest in Selection-6 (7.20t/ha). In an experiment Kanjilal et al. (6) reported that the yield of different ginger selections varied from 4.8 to 9.3 t/ha. Significant difference was observed in respect to dry matter content which was ranged from 14.50% (Selection-1) to 22.16% (Selection-5). Statistically highest amount of oleoresin was found in Selection-4 (6.2%) and it was lowest in Selection-5 (3.90%). Crude fiber content of the different genotypes under the present study varied from 4.3 to 7.83%. Selection-5 contained significantly lowest amount of crude fiber. Ash content of different genotypes ranged from 4.63 to 7.93%. In a trial of five ginger genotypes by John and Ferreira (7) found highest dry recovery in G₁₀ (27.5%) and crude fiber was highest G₉ (6.8%). Ratnambal et al. (8) reported the oleoresin content of different ginger genotypes ranging from 3.60 to 10.40%.

Thus we may conclude that the Selection-5 is suitable for drying and bleaching as it possesses highest dry matter content, lowest crude fiber content and comparatively higher yield. Having the highest amount of oleoresin content Selection-4 can be used

for oleoresin extraction. But for fresh consumption and making pickles Selection-1 is the suitable genotype as it gives moderately higher yield with less crude fiber and comparatively higher oleoresin content.

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