

Letter to the Editor

✂ Varietal Differences in Chemical Quality Parameters of Yellow Indian Mustard (*Brassica juncea*) (L) Czern and Coss Grown in Uttar Pradesh (India)

Sir:

Yellow Rai (*Brassica juncea*) oil is one of the most important edible oils in India. The oil is yellowish in color. In India, most people prefer colored oils over less colored, refined oils. Among oilseed crops grown in India, mustard is second to groundnut in prevalence. Mustard thus is a very important oilseed crop for India, particularly Punjab, Himanchal Pradesh, Haryana, Bihar, Madhya Pradesh, Kashmir and Uttar Pradesh states. People of these states consume mustard oil as an edible vegetable oil. The production of mustard is insufficient to meet demands of the population of the country. Each year, India imports edible oils. Among Indian mustard, brown-seeded varieties are very common. Yellow-seeded varieties have lower productivity compared to brown-seeded ones (1).

Abidi and Tripathi (1) reported the quality parameters of yellow-seeded Rai YRSK-1, but such research on yellow Rai is rare.

In this study, seed was cleaned and dried at 70 C. The oil content was estimated by conventional Soxhlet method (2). Moisture-free data are presented in column 2 of Table I.

Protein content in defatted cake was analyzed by the conventional Kjeldahl method (2). Nitrogen content was multiplied by a factor 6.25 to get protein content. The data of protein content on an oven-dried basis are tabulated in column 3 of Table I.

Iodine value was estimated in filtered oil by Hanus' method (3). The iodine values are tabulated in column 4 of the table. Allyl-isothiocyanate (Sinigrin) was estimated in whole seed by the method described by AOAC (2). Allyl-isothiocyanate (Sinigrin) content was tabulated in column (5) of Table I. Refractive indexes in filtered oils were read during daytime sunlight using an Abbe Refractometer. The data are presented in column 6 of Table I.

Fourteen varieties and 3 selections were analyzed for various chemical parameters. Protein content ranged from 38.2 to 44.6%. Iodine value ranged from 105.4 to 114.3. Variety YSK-3 (45-9) gave the highest oil content whereas PTYS-6 gave the lowest oil content. Variety YSP-408 gave the highest protein content. It has been observed in this investigation that, when the oil content increases, protein decreases and vice-versa. Trends are very similar to those reported by Abidi and Tripathi (4). Allyl-isothiocyanate (Sinigrin) content was lowest in varieties YSP-408 and PTYS-6 but not necessarily lower in varieties which have higher oil content. There was not much difference in iodine value and refractive index among the varieties.

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REFERENCES

1. Abidi, A.B., Ph.D. thesis of Biochemistry, Kanpur University, Kanpur, India, 1978.
2. "Official Methods of Analysis," 11th. ed., Association of Official Analytical Chemists, 1970.
3. Jamieson, G.S., "Vegetable Fats and Oils," Reinhold Publishing Corp., New York, NY, 1943.
4. Abidi, A.B., and R.D. Tripathi, Indian J. Agric. Chem, 10: 222 (1977).

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TABLE I

Effect of Varieties/Selections of Yellow-Seeded Rai (*Brassica juncea*) on Oil, Protein, Iodine Value, Allyl-isothiocyanate and Refractive Index of the Oil

Varieties/ selection	Oil (%)	Protein (%) N × 6.25	Iodine value	Allyl-isothiocyanate (Sinigrin)%	Refractive index at 26 C
YSK-2 (T-62)	31.6	38.9	105.4	0.79	1.4671
DYS-3 R II	35.2	40.6	110.5	0.58	1.4674
YSK-3 (45-9)	44.1	34.1	114.3	0.59	1.4674
YSIK-7111	36.7	41.8	111.8	0.66	1.4674
YSK-1 (K-88)	31.2	42.9	110.5	0.64	1.4676
YSIK-741	25.5	41.8	113.0	0.68	1.4650
DYS-1	27.5	38.2	114.3	0.72	1.4671
YSP-408	22.4	44.6	114.3	0.43	1.4673
YSIK-742	38.4	41.8	109.2	0.78	1.4676
YSIK-4	27.8	45.9	111.8	0.53	1.4672
YSP-6	25.4	38.8	107.9	0.94	1.4672
YSP-9	26.4	41.8	105.4	0.67	1.4672
DYS-2	26.4	44.7	108.0	0.76	1.4671
PTYS-6	20.2	46.5	114.3	0.43	1.4673
S1.1	42.1	40.8	111.8	0.76	1.4674
S1.2	42.3	40.1	111.8	0.78	1.4677
S1.3	39.1	42.2	105.4	0.62	1.4677