

SCIENTIFIC NOTE

Sugarcane Variety for Gur Production

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Gur (Jaggery) is manufactured in almost all parts of Bangladesh where sugarcane is grown in abundance. Gur making is one of the most important cottage industries in Bangladesh. In fact more than 50 percent of total sugarcane production in Bangladesh is utilized towards Gur manufacture (Anon. 1981). The varieties suitable for Gur making are found to be equally good for sugar production as well, but a variety highly suitable for sugar production may not be suitable for Gur making (Singh *et al.* 1975). The chemical composition of Gur and its quality are dependent on the composition of juice from which Gur is made. It depends on a number of factors namely soil, climate, variety, nature of cultivation, the stage of maturity at harvest and the method of preparation of Gur. The Gur is highly hygroscopic and as a result it becomes soft and sticky and often liquifies completely. Some microorganisms are responsible for fermentation which brings about various changes resulting in heavy losses both in weight and quality (Farooque, 1960). The quality for Gur is considered by its sucrose content, reducing sugar, colour etc. (Gopal and Chiranjivi, 1959) though the quality may be further modified by method of boiling and clarificants used for the preparation of Gur.

In order to select sugarcane varieties for Gur production, nine sugarcane varieties, viz. Co. 975, Isd-16, Isd-2/54, L. Jaba-C, Co. 1148, Nagarbari, B. O. 17, B. O. 70 and Co. 1158 were planted in the Sugarcane Research & Training Institute farm. The varieties were grown by applying recommended doses of fertilizer (125:125:110 kg/ha). Gur was prepared from the juice of varieties immediately after harvest by open pan boiling method using ordinary lime as a clarifying agent. It was analysed after 2 days of its preparation for the important physical and chemical properties such as colour in solid state, purity and sucrose, reducing sugar and moisture contents. It was then stored in glass container and after six months it was again analysed. The percent sucrose and colour of Gur were determined by saccharimeter and photo-electric colorimeter using 660m filter. Reducing sugar content was determined by Lane and Eynon Method (Anon. 1979).

The percent recovery of Gur and their physico-chemical properties are shown in Table 1. From the results it was observed that variety L. Jaba-C gave highest recovery of Gur followed by Isd-16 and B. O. 70 and the physical properties viz. texture, crystalline nature, and colour in solid state were found to be superior to those of the Gur of the other varieties. Besides, it should have fine yellow colour, good taste, crystalline nature and a long shelf-life. It is evident from the data that Gur of the variety L. Jaba-C, Isd-16 and B. O. 70 were light in colour and gave comparatively low colour reading before and after storage and the highest colour reading was observed in variety Co. 1148 and Co. 975. A similar finding had also been reported by Gopal and Chiranjivi (1959) that light coloured Gur is always preferred for eating purpose and good quality Gur is characterised by light colour, open texture, high sucrose and low reducing sugar. The percentage of pol (sucrose) of Gur of different varieties showed that Isd-16 gave highest pol and low reducing sugar before and after storage followed by variety L. Jaba-C. Pol percent being the chief sweetening factor, it is important from the grading point of view. Reducing sugar content of Gur of the varieties Isd-16, L. Jaba-C, B. O. 17 and B. O. 70 were found to be lower than those of the other

Table 1. Physical and chemical properties of Gur.

Variety	% Recovery of 'Gur'	Physical properties				Chemical properties								Mois- ture %	Ash
		Quality	Texture	Crystalline nature	Colour in solid state	Colour		Pol %		Purity Co. eft.		Reducing sug. %			
						B.S.*	A.S.*	B.S.	A.S.	B.S.	A.S.	B.S.	A.S.		
Co. 975	8.36	Good	Soft	Good	Reddish brown	65.0	62.0	73.2	69.8	88.19	81.46	5.85	6.92	5.61	2.00
Isd-16	10.56	Good	Hard	Medium	Golden yellow	44.00	46.0	86.3	76.5	79.66	77.85	5.23	6.44	4.92	1.92
Isd-2/54	9.44	Medium	Soft	Medium	Reddish brown	59.0	55.0	71.6	68.8	72.50	68.8	8.08	12.00	7.30	2.46
L. Jaba-C	10.83	Poor	Hard	Medium	Golden yellow	41.5	45.0	78.2	76.3	80.84	78.47	6.15	7.15	5.23	2.12
Co. 1148	10.00	Medium	Soft	Poor	Dark brown	64.2	61.8	59.2	51.6	60.73	67.08	10.38	12.92	6.89	2.73
Nagarbari	9.17	Good	Hard	Medium	Dark brown	39.5	36.0	73.6	70.4	73.46	70.32	7.46	9.08	5.46	2.72
B. O. 17	7.22	Medium	Hard	Medium	Dark brown	61.1	52.5	75.4	74.0	76.72	73.12	7.77	8.53	5.38	2.58
B. O. 70	10.27	Good	Hard	Medium	Brown	48.0	47.0	76.0	73.2	74.95	72.00	5.85	7.18	5.82	2.34
Co. 1158	10.00	Medium	Hard	Medium	Dark brown	49.0	48.0	77.0	75.0	75.93	75.00	7.56	8.38	5.38	2.29

* B.S.= Before storage

* A.S.=After storage.

varieties. This observation agrees with the results obtained by Gaur *et.al.*(1979) who reported that a good quality Gur should have high sucrose and low reducing sugar content. Gur containing high percentage of reducing sugar is generally discarded because it is very hygroscopic, has poor quality and low shelf-life. Higher percentage of ash affects the taste of Gur and higher percentage of moisture is a bad characteristics of Gur (Gaur, *et. al.* 1979). The ash content of Gur should not be more than 5 percent. From the results, the ash content of Gur of varieties Isd-16 and L Jaba-C were less than other varieties. Physico-chemical studies from nine varieties of Gur indicated that Gur obtained from L. jaba-C was superior in quality followed by Isd-16 and B. O. 70.

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