

A PRETREATMENT TO RELIEF DULL SOIBUM FERMENTATION CAUSED BY PHENOLIC COMPOUNDS

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The Soibum fermentation could not be progressed well when started from edible bamboo shoots of *Dendrocalamus giganteus* having 114 mg phenolic compounds per 100g. A brief washing reduced native population of lactics, contents of reducing sugars and phenolic compounds. However, the progress of lactic fermentation when followed for one month, by determining pH drop, formation of lactic acid, consumption of reducing sugar and population development of lactics was pronounced in the washed mash as compared with unwashed mash. Dull fermentation in unwashed mash was accompanied with abnormal inclines of reducing sugars.

Keywords : Edible bamboo shoots; Phenolic compounds; Soibum fermentation.

The processing of edible bamboo shoots for magnified use is found to undertake with varied methods such as brine storage¹, preparation of softdrink², canning³ and pickling⁴ etc. The people of north east India, specially Manipuri are customary in the taking of Soibum, an indigenous fermented from of edible bamboo shoots prepared with natural lactic fermentation since unpredictable date⁵.

The processing of edible bamboo shoots for widespread production of Soibum in this region is rather traditional and sometimes it succumbs with the formation of unpleasant product probably from poor knowledge on the selection of raw materials. It was observed that when different mashes of *Dendrocalamus giganteus* categorised by proximate difference in the contents of phenolic compounds were tested under the same condition, initial mashes noted to have values 32-62 mg per 100g were acceptably fermented and fermentation conducted from other initial mashes having the values far higher than these was encountered to be dull and impracticable⁵. So an attempt has been made to examine the effect of brief washing for a instead safer use of raw materials noted

to have high values of phenolic compounds.

The edible shoots of *D. giganteus* sorted out as having high contents of phenolic compounds⁶, were prepared into thin slices out of their soft portions and thoroughly mixed mash of slices was divided into two portions. One of them, after a pretreatment done as brief washing, was balanced for moisture content. Each of the two test mashes, received the natural fermentation inside compactly packed polythene bags at room temperature (26±4°C) and for comparative study on the changes of pH, lactic acid⁷, reducing sugars⁸ and population of lactics (microscopically), triplicating bags belonging to each test sets were analysed at an interval of 5 days upto 30 days. Zero day mashes were initially included for the comparison.

The proximate content of phenolic compounds in the unwashed mash was 114mg per 100g. The brief washing reduced them and reducing sugars by 21 and 602 mg per 100g, respectively. It retained about half of native population of lactics in the washed mash (Table 1). The data further show that although the contents of reducing sugar and lactic population were lower in washed

Table 1. Parameters for comparing the progress of fermentation in unwashed and washed mashes of *Dendrocalamus giganteus*.

Days	Unwashed				Washed			
	A:114				A:93			
	B	C	D	E	B	C	D	E
0	5.0	1117	0.0	260	5.3	515	0.0	135
5	4.2	938	0.2	798	4.0	314	0.2	1326
10	4.3	863	0.3	1058	4.0	163	0.5	2288
15	4.6	941	0.3	1534	3.8	43	0.6	2860
20	4.3	1549	0.4	1310	3.8	77	0.6	2886
25	4.2	1083	0.4	966	3.8	38	0.7	1820
30	4.4	1238	0.3	901	3.8	47	0.6	1768

A: Phenolic compounds in mg/100g, B: pH, C: Reducing sugars in mg/100g, D: Lactic acid in percentage and E: Population of lactics to be multiplied by 10^5 . All values are means of triplicating determinations.

mash, fermentation followed from it exhibited better formation of lactic acid as supported with greater population development of lactics, usual changes in the levels of pH and reducing sugars and fermentation started from the unwashed mash was undergone rather dull compared to former cases. In the latter cases, even high contents of reducing sugars could not support the fermentation as expected.

Pretreatment thus carried out elaborated the lactic fermentation with the consumption of available sugars, probably from the reduction of phenolic toxicity experienced by lactics. This view got the support when Lee and Yang⁹ observed that utilization of reducing sugars, development of lactic population and formation of lactic acid in culture medium increased as the amounts of treated phenolic compounds were decreased. Further, it may be opined that brief washing drained out more water soluble phenolic compounds which were likely to be strong antagonists of lactics since upon their

removal lactic fermentation had been amply encouraged.

As is evident from Table 1, inclines in the periodic levels of reducing sugars during fermentation of washed mash would originate from the degradation of higher carbohydrates into their simplest forms.

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