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Effect of Hibiscus Leaves on Lactofermentation of Dosa Batter

Rajarajeshwari R, Wethroe Kapfo*, Tejaswini Hegde, Rajalakshmi, Geethanjali and Vanditha Hegde

Department of Biochemistry and Department of Microbiology, MMK & SDM Mahila Mahavidyalaya, Mysuru



Wethroe Kapfo

wethroe@sdmmmkmysore.in

Abstract:

Background: Dosa prepared using Hibiscus leaves is one of the traditional cuisines of coastal regions of Karnataka state, India. It has distinct and favourable flavour and consumed for its health benefits. The objective of the study was to identify the effect of the hibiscus leaves on lactofermentation of dosa batter and on the nutritional value.

Methodology: Two sets of raw rice, urad dal and fenugreek seeds in 1:0.25:0.05 ratio were soaked for 8 hours and ground upto dosa consistency. One set was Control sample which contained the above ingredients only. The Test sample included hibiscus leaves in 10% proportion during the grinding process. Both the samples were incubated for 12 h at 37°C. After fermentation, the samples were serially diluted and dilution from 10^{-8} to 10^{-10} were pour-plated in MRS Agar media. After incubation of 24h at 37°C, the colony characteristics and colony count was analysed for both samples. The bacteria were subcultured to obtain pure cultures and subjected to biochemical analysis. The strain having circular-transparent colony characteristics was sequenced and the gene sequence data is uploaded in GenBank, NCBI. The dosas prepared from test and control batter samples were subjected to proximate analysis and phytochemical screening.

Results: Both sample cultures showed bacteria colonies having circular-transparent, punctiform-opaque, spindle-opaque and irregular-translucent colony characteristics. The biochemical analysis indicated that the cultures were lactic acid bacteria, and gene sequence analysis confirmed it to be *Pediococcus pentosaceus*. Test samples showed higher total ash, total sugar, total protein, phosphorous and vitamin C content to Control sample, while the control sample showed higher iron content than Test sample. Phytochemical screening of ethyl acetate, ethanol and aqueous extracts of dosa showed that phenolics and phaeophytin were present.

Conclusions: The hibiscus leaves didn't inhibit the microaerophilic LABs in dosa and enhanced the nutritive values.

Keywords:

Lactic acid bacteria, Proximate analysis, Phytochemical screening, Nutritive value of dosa, Hibiscus leaves

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