

Optimisation of Stored Alcoholic Beverage Joufinai with Reverse Phase HPLC Method and Its Antioxidant Activities: North- East India

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Abstract : Fermented alcoholic beverage production has its own stand among the tribal communities of North-East India. This biological oxidation method is followed by Ahom, Dimasa, Nishi, Miri, Bodo, Rabha tribes of this region. Bodo tribes among them not only prepare fermented alcoholic beverage but also store it for various time periods like 3 months, 6 months, 9 months, 12 months and 15 months etc. They prepare alcoholic beverage Jou (rice beer) following the fermentation of *Oryza sativa* with traditional yeast culture Amao. *Saccharomyces cerevisiae* is the main domain strain present in Amao. Dongphangrakep (*Scoparia dulcis*), Mwkha (*Clerodendrum viscosum*), Thalir (*Musa balbisina*) and Khantal Bilai (*Ananas cosmos*) are the main plants used for Amao preparation. The stored Jou is known as Joufinai. They store the fermented mixture (rice and Amao) in anaerobic conditions for the preparation of Joufinai. We observed a successive increase in alcohol content from 3 months of storage period with 11.79 ± 0.010 (% v/v) to 15.48 ± 0.070 (% v/v) at 15 months of storage by a simple, reproducible and solution based colorimetric method. A positive linear correlation was also observed between pH and ethanol content with storage having correlation coefficient 0.981. Here, we optimised the detection of change in constituents of Joufinai during storage using reverse phase HPLC method. We found acetone, ethanol, acetic acid, glycerol as main constituents present in Joufinai. A very good correlation was observed from 3 months to 15 months of storage periods with its constituents. Increase in glycerol content was also detected with storage periods and hence Joufinai can be use as a precursor of above stated compounds. We also observed antioxidant activities increase from 0.056 ± 2.80 mg/mL for 3 months old to 0.078 ± 5.33 mg/mL (in ascorbic acid equivalents) for 15 month old beverage by DPPH radical scavenging method. Therefore, we aimed for scientific validation of storage procedure used by Bodos in Joufinai production and to convert the Bodos' traditional alcoholic beverage to a commercial commodity through our study.

Keywords : Amao, correlation, beverage, joufinai

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