

Biochemical and Microbial Examination of Sulphi and Cheend: Two Alcoholic Beverages from Central India

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Abstract

Sulphi and Cheend have been used as alcoholic beverages by tribal people of Bastar region of Chhattisgarh state in India. The biochemical and microbial nature of these two beverages were studied and it was found that Sulphi has more protein content and less sugar content while Cheend has less protein content and more sugar content. This difference also was highlighted in number of different bacteria present in these two beverages as Sulphi has less number of bacteria than Cheend.

Keywords: Sulphi; Cheend; Sugar; Protein; Bacteria

Introduction

Fermented food and beverages have been used worldwide since time immemorial. Various cultures have traditionally been using various fermented products. Beer was brewed by Babylonians and also exported to Egypt around 3000 BC [1]. Borde and tej from Ethiopia [1,2], boza from Turkey [3], suusac from Kenya [4], Fermented milk product from Fulani (a tribe) of Burkina Faso [5], pulque a traditional Mexican alcoholic beverage [6], Sobia from Saudi Arabia [7], Bhaati Jaanr from Eastern India, Hamei and Marcha from Sikkim and Manipur [8,9] are just few fermented food products and beverages. Many others, which are also used, may not have found themselves in the literature. Sulphi and Cheend are such products.

Sulphi is extracted from fishtail palm *Caryota urens* by cutting growing leaf base of the plant and an earthen pot is tied beneath the cut to collect the juice. Similarly Cheend juice is extracted from a palm *Phoenix dactylefera*. Both Sulphi and Cheend are used by the tribal people of Bastar region of Chhattisgarh state of central India. The present work aimed at quantitation of sugar and protein along with bacteria in both these alcoholic beverages.

Materials and Methods

Ten samples each of Sulphi and Cheend were collected and brought in the laboratory. All the samples were subjected to quantitative estimation of sugars and proteins. Microbial tests were performed on all the samples for isolation of bacteria.

Biochemical quantitation

The samples were tested for amount of sugar and protein present in Sulphi and Cheend. Sugar was estimated by DNS method [10] and protein by Lowry's method [11].

Microbial quantitation

Sterile nutrient agar plates were used for isolation of bacteria from the samples. For each samples three plates were used. The numbers of bacterial colonies developed were pure cultured and numbers of different bacteria were counted.

Result and Discussion

Sulphi and Cheend are used as alcoholic beverages by tribal people of Bastar region of Chhattisgarh state of central India. They use both

these beverage from November to Mid June. Sulphi is considered a drink which helps in coping with the heat during summers. Cheend is used a refreshment drink.

The average amount of protein in different samples of Sulphi and Cheend was 1.680 mg/ml and 1.06 mg/ml respectively. Average sugar present in Sulphi and Cheend was 1.00 mg/ml and 1.50 mg/ml respectively. The number of different bacteria found in Sulphi was less compared to that of Cheend (Table 1 and 2).

The number of bacteria present in alcoholic beverages is different in both the types but is higher in the case of Cheend than Sulphi. The reason for this is clearly due to the amount of sugar. Cheend has more sugar than Sulphi therefore it able to support more number of bacteria than Sulphi.

As Sulphi has more protein it can be promoted as a health drink and Cheend as energy drink as it has more sugar. The work done here is preliminary and the characterization and identification of bacteria present in both the beverages are not undertaken. The further work on

| S.No. | Sample | Sugar (mg/ml) | Protein (mg/ml) | No. of bacteria |
|-------|--------|---------------|-----------------|-----------------|
| 1 | 01 | 1.00 | 1.62 | 04 |
| 2 | 02 | 1.05 | 1.69 | 03 |
| 3 | 03 | 1.08 | 1.64 | 05 |
| 4 | 04 | 0.97 | 1.70 | 04 |
| 5 | 05 | 1.01 | 1.66 | 04 |
| 6 | 06 | 1.02 | 1.65 | 04 |
| 7 | 07 | 1.04 | 1.68 | 05 |
| 8 | 08 | 0.99 | 1.69 | 03 |
| 9 | 09 | 1.03 | 1.65 | 04 |
| 10 | 10 | 1.05 | 1.64 | 05 |

Table 1: Results for different tests on Sulphi.

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| S.No. | Sample | Sugar (mg/ml) | Protein (mg/ml) | No. of bacteria |
|-------|--------|---------------|-----------------|-----------------|
| 1 | 01 | 1.50 | 1.02 | 08 |
| 2 | 02 | 1.55 | 0.99 | 10 |
| 3 | 03 | 1.48 | 1.06 | 07 |
| 4 | 04 | 1.51 | 1.04 | 08 |
| 5 | 05 | 1.50 | 1.05 | 07 |
| 6 | 06 | 1.52 | 1.03 | 09 |
| 7 | 07 | 1.49 | 1.04 | 08 |
| 8 | 08 | 1.50 | 1.05 | 10 |
| 9 | 09 | 1.53 | 1.02 | 08 |
| 10 | 10 | 1.55 | 1.03 | 08 |

Table 2: Results for different tests on Cheend.

the following lines would definitely provide a better understanding of the nature of bacterial populations present in both these beverages and may also help in highlighting new bacterial species.

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