

Effects of Ingredients, Fermentation Time and Pasteurization on Quality and Shelf Stability of Tella

Neela Satheesh, Shilimat Tolossa and Yetenayet Bekele
Jimma University, Ethiopia

Tella is one of the Ethiopian traditional fermented beverages, brewed from local hops (*Rhamnus prinoid*), malts of barley, maize, wheat, sorghum, finger millet and teff usually having very less shelf-life. Tella being the most consumed indigenous beverage in Ethiopia but a least investigated beverage in terms of effects of ingredients and shelf stability. A three factors factorial experiment each with three levels in three replication laid out in RCBD design to determine the malt combination, adjunct and fermentation duration on physicochemical properties of tella. In a further study, a time-temperature study was carried out by two pasteurization temperatures, 15.86 PU at 60°C and 7.79 PU at 65°C to determine the effect of pasteurization on the physicochemical, microbial and sensory properties of pasteurized tella. Data were subjected to analysis of variance SAS (version 9.2), multiple comparisons among treatment means were done using Tukey method at $p < 0.05$. The physicochemical properties of tella were significantly ($p < 0.05$) affected by malt, adjunct combination and fermentation time. The changes in pH, TSS, TA, alcohol content of pasteurized tella samples were much slower during the storage period as compared to control unpasteurized product. There was no significant difference between unpasteurized and pasteurized samples at 60°C in terms flavor, aroma, mouth feel and overall acceptability, whereas, samples pasteurized at 65°C scored lowest for flavor, taste, color, mouth feel and over all acceptability. Pasteurization had a significant ($p < 0.05$) effect on microbial load. Unpasteurized samples had the highest microbial growth during the storage period, while pasteurized at 60°C and 65°C had maintained a very low microbial growth during the storage period. Finally, pasteurization extended shelf stability of tella for 45 days without a significant change in terms of physicochemical and microbial changes.

Biography:

Dr. Neela Satheesh is working as an Assistant Professor in Department of Postharvest Management, College of Agriculture and Veterinary medicine, Jimma University, Ethiopia. Dr. Neela acquired Doctorate Degree in Food technology From Jawaharlal Nehru Technological University, Andhra Pradesh, India. He published more than 15 international publications in different peer reviewed journals and presented various research works related to Food Technology in different national and international conferences held at India and Ethiopia. He is one of the young and active academic staff and researchers with research interests of Food product development, Human nutrition, Traditional foods and beverages of Ethiopia and preservation of perishables. Dr. Neela has been actively handling different external and internal sponsored projects in Jimma University.