

ISOLATION OF YEASTS AND ACETIC ACID BACTERIA FROM KOMBUCHA BEVERAGE DURING FERMENTATION

**Aleksandra Ranitović, Dragoljub Cvetković, Ana Tomić, Siniša Markov,
Olja Šovljanski**

Faculty of Technology Novi Sad, Bulevar cara Lazara 1, 21000 Novi Sad, Serbia

a.ranitovic@uns.ac.rs

ABSTRACT

Kombucha is a beverage which has been traditionally obtained from a fermentation of sweetened black and green tea leaves, which results in a product with a slightly acid, sweet flavor and high sensory acceptance. The beverage possesses antimicrobial, antioxidant, antidiabetic and anticancer benefits. The fermentation of tea is the product of a symbiosis of acetic acid bacteria and yeasts installed in a cellulose film as well as in beverage. Community of microorganisms varies in great stance based on the geographical origin and also over time between batch fermentations of the same producer. The variability in the kombucha microbial community demonstrates how complex is the process of this fermented beverage. So, it is important to establish standard process conditions and a stable set of microorganisms throughout fermentations which will result in beverage stable characteristics and facilitate the process transition to the industrial level.

Considering the above, the objective of this work was to isolate different strains of yeasts and acetic acid bacteria during kombucha fermentation. The process lasted eight days, when the beverage achieved optimal consuming acidity, about 3,5g/L. On the start of fermentation, on the third, fifth and eighth day, samples were taken to determine total count of yeasts and acetic acid bacteria. Based on macromorphological and microscopic characteristics of colonies on appropriate nutrient media, from each examined day of fermentation, potentially different colonies were selected. It has been observed that there were six potentially different strains of yeast and three strains of acetic acid bacteria. In order to notice further differences between acetic acid bacteria, tests of cellulose formation and acetic acid degradation were performed, which showed that at least two of the three strains are different. As for yeasts, sporulation test, urea hydrolysis, temperature effect on growth and glucose fermentation were done. Results showed that at least four different yeast strains were present in fermentation broth. The next step in the research is the identification of isolated species and identify the best mixture of microorganisms result in kombucha beverage showing stable characteristics.

Keywords: kombucha, yeasts, acetic acid bacteria