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Analysis of microbial community and functional components of Kombucha

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Kombucha is a fermented beverage obtained by fermentation of bacteria and yeast; green tea (or black tea) and sugar as main ingredients. It is also known as 'mushroom tea' and it has been used as a folk remedy for hepatitis, arthritis, indigestion and hypertension. However, scientific data on its efficacy is very low. Therefore, we identified the major microbe's influence to ferment the Kombucha and studied to establish the optimum conditions for Kombucha during the fermentation process. We analyzed the microbial community after Kombucha fermentation using the Kombucha as a starter. In group A, *Komagataeibacter hansenii* was 42.09% while in group B, *Komagataeibacter hansenii* was 90.56%. In addition, after the identification analysis, the major strains of Kombucha were acetic acid bacteria (*Gluconacetobacter hansenii*, *Gluconacetobacter europaeus*, *Gluconobacter oxydans*, *Acetobacter peroxydans*) and yeast (*Dekkera bruxellensis*, *Lachancea fermentati*, *Cryptococcus diffluens*). As a result of the analysis of various components during the fermentation process of Kombucha, the amount of dried matter and amino nitrogen of the culture tended to decrease with increasing fermentation time. Changes in total sugars tended to decrease with increasing fermentation time, while changes in the content of reducing sugars tended to increase with fermentation time of Kombucha. Moreover, ABTS radical scavenging activity was not changed during the fermentation process while DPPH radical scavenging activity was slightly increased with increasing fermentation time. The main organic acid of Kombucha was acetic acid, and glucuronic acid; malic acid and lactic acid were also produced. Through our scientific analysis, we anticipate that Kombucha result in the discovery of many more potential functional beverages for food industry.

Biography

Seok Jun Son is a PhD candidate and has great research experience on functionality of diverse foods or its materials including fermented beverage (Kombucha), royal jelly, protein powder originated rice, and probiotics for promoting human health. Recently, he is focusing on the molecular mechanisms of probiotic strain and its fermented products for intestinal microbial community and anti-inflammatory properties. In addition, he has taken a novel viewpoint in this review by specifically highlighting that the microbial composition in beverage (Kombucha) may be a key player for fermentation products and its functionality. Especially, his outstanding results may help monitor and control the microbes and fermentation products through the producing environment, which has influence on these foods.

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