

P7-101

Production of Bacterial Cellulose Pellicle and Acids in Kombucha

Sam-Pin Lee* and Young-Duck Ha. Dept. of Food Science and Technology, Keimyung University

Bacterial cellulose and acidity were determined from kombucha fermented by Oriental tea fungus. Kombucha was fermented with the green/black tea extract containing 10% white sugar for 12 days and then were analyzed for each 4 days. Acidity were drastically increased for 12 days even though tea fungus matrix formed on the surface was removed. Titrable acidity was increased in tea extract prepared with distilled water, but cellulose production was very weak. In the both static and shaking culture, tea extract prepared with mineral water was produced kombucha with higher cellulose yield and lower acidity. Both cellulose pellicle and broth of tea fungus were able to produce cellulose and acids in tea extract. Initial amount of broth was affected the production of cellulose and acids. Addition of broth in 200 ml culture medium, to be obtained to an initial acidity of 0.084%, showed the maximum production of cellulose pellicle, indicating weak production of acids. Cellulose pellicle as a starter resulted in the best production of cellulose in kombucha for initial 4 days. Tubular form of bacterial cellulose was obtained by using different device.

P7-102

Protective Effect of Vegetable Extracts on Oxidative Stress in Brain of Mice Administered with NMDA

Kun-Jong Lee*, Dai-Eun Sok¹ and Mee Ree Kim.

Department of Food and Nutrition, ¹College of Pharmacy, Chungnam National University

To find vegetable extracts showing a protective action against oxidative stress in the brain, the extract of various vegetables was administered via gavage to ICR female mice administered i.p. with NMDA, and the change of total glutathione, lipid peroxidation and protein oxidation in the brain tissue was examined. Compared to the vehicle-treated control, no significant change in body and brain weight was observed in mice groups administered with either NMDA or vegetable extracts. An administration of NMDA (80 mg/kg) decreased the level of total glutathione with a maximal decrease of approximately 20%, and the decrease of total glutathione caused by NMDA was partially prevented by melatonin (2.5 mg/kg), an endogenous antioxidant. When twenty vegetable extracts were examined for the neuroprotective action, the extracts of three vegetables, rough aster, sedum and red cabbage, showed the most remarkable action in restoring glutathione level. In addition, rough aster and red cabbage expressed a significant prevention against the NMDA-induced increase of thiobarbituric acid-reactive substances value in cytosolic portion of brain homogenate ($p < 0.05$), while their effect on protein oxidation and glutathione-related enzymes was not remarkable. Based on these results, it is suggested that some vegetable extracts may be useful functional agents to prevent against oxidative stress in brain of mice.