

Title : Efficacy of Matcha and Hojicha Extracts for Promoting Probiotics Growth and Antioxidant Activity

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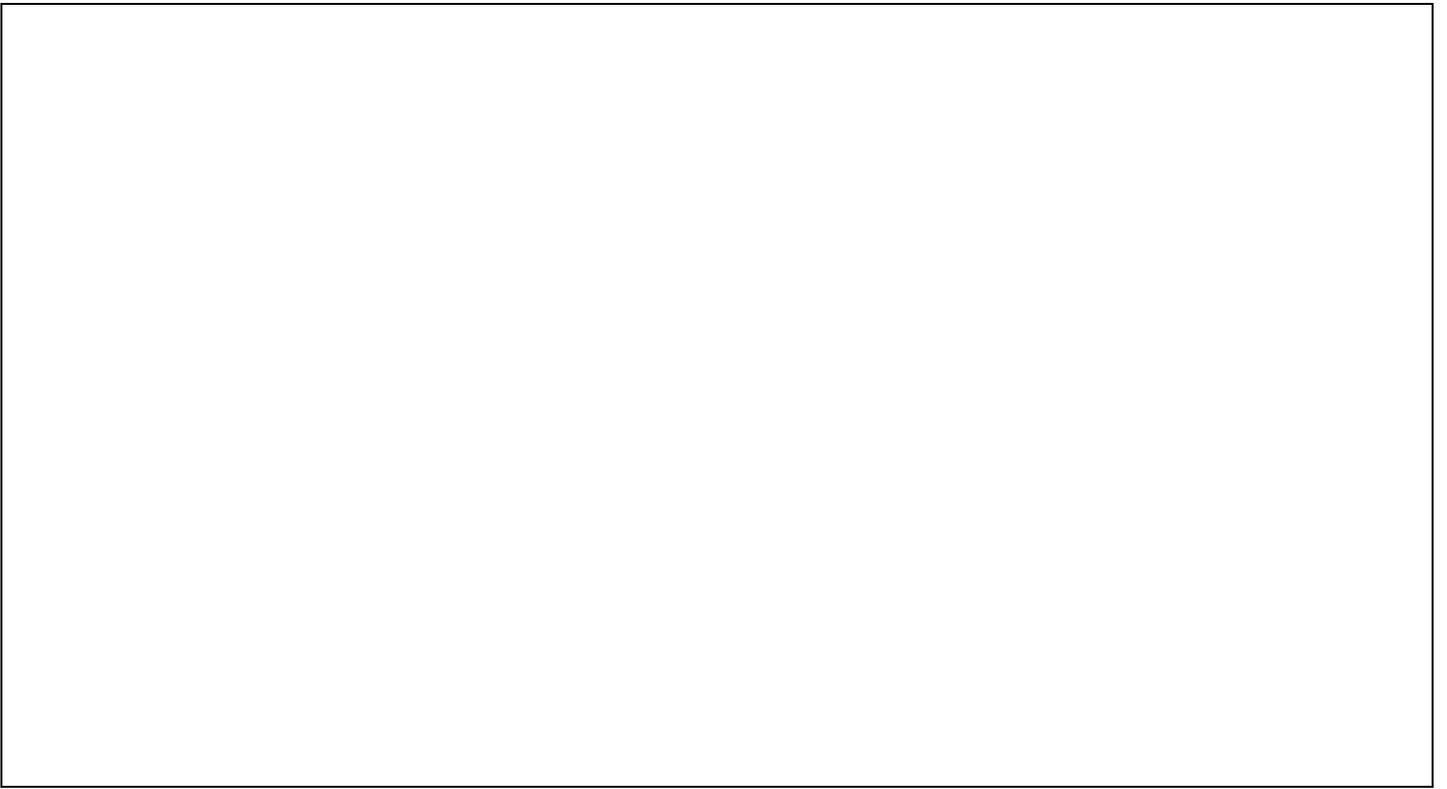
ABSTRACT

Polyphenols, the main compounds in tea, possessed both chemical and prebiotic properties that could support the growth of beneficial gut bacteria. This study aimed to evaluate the effectiveness of matcha and hojicha green tea extracts for promoting probiotic growth and antioxidant activity. Tea samples were finely ground and extracted using two methods including hot extraction (80°C for 20 minutes) and cold extraction (4°C for 16 hours). All extracts were dried using evaporation and lyophilization. After extraction, the matcha green tea exhibited the highest yield at 20.23%. Moreover, the matcha cold extract showed the highest phenolic compound content of 101.89 ± 11.53 mg gallic acid/g extract. In addition, the matcha cold extract also displayed the highest antioxidant activity of 252.87 ± 76.61 mg gallic acid/g extract that observed by DPPH assay. However, the extraction methods did not affect the amount of phenolics and antioxidant capacity. This study was determined the concentration of tea extracts that did not inhibit the growth of probiotics such as *Lactobacillus paracasei* MP137, *Lactobacillus casei* TISTR 1340, *Lactobacillus plantarum* TISTR 2070, *Bacillus coagulans* BC-G44, and *Bifidobacterium animalis* subsp. *lactic* CP-9. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) tests on probiotics revealed that matcha extracts had the lowest MIC and MBC values 15.63 mg/ml. Additionally, matcha extracts at the concentration of 15.63 – 31.25 mg/ml could significantly promote the growth of *L. plantarum* and *B. animalis* after 48 hours. These findings suggest that matcha green tea extract has strong potential as a prebiotics and antioxidant activity.

Keywords: Hojicha, Hot and Cold Extraction, Matcha, Prebiotics, Probiotics

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