

Analysis of Total Polyphenol Content of Fresh Tea Leaves and Black Tea from Fifteen Distinct Tea Cultivars

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Abstract

The most popular beverage in the world is tea, which is made from *Camellia sinensis* (L). O. Kuntze. Polyphenols are abundant in tea leaves. The antioxidative property of tea polyphenols has been partially attributed to the potential health benefits of tea consumption. The objectives of this study are to determine the total polyphenol content of fresh leaves from 15 different tea cultivars and black tea prepared using the same cultivars. The tea leaves were collected from tea estate managed by TRISL, which were then freeze dried. The total polyphenol of the freeze-dried tea samples was analyzed by spectrophotometer using folin-ciocalteu method. Using a miniature manufacturing process, fresh leaves were turned into black tea. Then the total polyphenol content of the black was analyzed. The presence of more than 18% of polyphenol content in the processed black tea were considered the best samples. The sensory evaluation using 5-point hedonic scale was conducted for the black tea produced from cultivars TRI 3041, TRI 3055, TRI 4049 and TRI 4042 by using thirty untrained panelists. According to the results total polyphenolic content was significantly ($p < 0.05$) high in fresh leaf of TRI 3035 (26.739%) and for black tea TRI 3041(23.189%). The sensory evaluation revealed that there were significant differences ($p < 0.05$) in the sensory attributes among the black teas that were prepared, and the cultivar TRI 3055 was chosen as the best by the sensory panel. Thus, TRI 3055 demonstrated the best outcomes based on sensory evaluation and polyphenol content. The TRI 3055 cultivar may be utilized in the future to boost the polyphenols content in black tea and to raise human immunity.

Keywords: Black tea, Cultivars, Miniature process, Total Polyphenol Content