Effects of Tannase in Comparison to Viscozyme on Physicochemical Properties of Cold-Water-Soluble Instant Tea

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Developing turbidity in cold-water-soluble instant black tea is undesirable. Though varies enzymatic treatments have been invented to overcome this problem their effects on physicochemical properties of cold-water-soluble instant black tea are not known. This experiment was conducted to investigate the effects of optimized tannase and viscozyme enzymes treatments on physicochemical properties of cold-water-soluble instant black tea. Samples of hot water extract of black tea were treated separately with five different levels of tannase and viscozyme (0.1-0.5%) based on the total solid in the extract maintaining the temperature at 45^{o}C for 40 min. Then the samples were heated to 90^{o}C and after cooling to room temperature they were centrifuged at 3,500 rpm for 10 min. Supernatants were analyzed for turbidity, color, brightness and total polyphenol content. This experiment was repeated thrice. Data were statistically analyzed by performing Duncun Multiple Range Test ($P<0.05$). Lowest turbidity levels were evident for both Tannase (16.86±2.2) and Viscozyme (4.85±1.20) at 0.3% enzyme level. Total polyphenol content (g/100 mL) of tannase treated sample (0.78±0.13) was not significantly different to that of viscozyme treated sample (0.64±0.02). Color of tannase treated sample (10.10±0.61) was significantly higher than that of viscozyme treated sample (8.73±0.52) but its brightness (11.89±1.18) was significantly less than that of viscozyme treated sample (13.47±0.99). Nevertheless, turbidity of viscozyme treated sample (4.85±1.20) was significantly lower than that of tannase treated sample (16.87±2.45). It can be concluded that tannase can improve color of cold-water-soluble instant tea and viscozyme improves clarity of instant tea at 0.3% enzyme level. It should be further studied the potential of combine treatment of enzymes in improving overall physicochemical properties of cold-water-soluble instant tea.

Keywords: Tea cream, Instant Tea, Enzymatic treatment, Cold water solubility