

**Effects of Tannase in Comparison to Viscozyme on  
Physicochemical Properties and Sensory Properties of  
Cold Water Soluble Instant Tea**

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## ABSTRACT

Developing turbidity in cold water soluble instant black tea is undesirable. Though various 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. A preliminary study was conducted to optimize the level of enzyme. Samples of hot water extract black tea were treated separately with five different levels (0.1-0.5%) of tannase and viscozyme enzymes based on the total solid in the extract while maintaining the temperature at 45°C for 40 min. Then the samples were heated to 90°C and after cooling to the room temperature samples were centrifuged at 3500 rpm for 10 minutes. Turbidity, color and brightness of supernatant were measured. Further supernatant were analyzed for theaflavin and thearubigins and total polyphenol content. Then samples of hot water extract of black tea were treated with optimized enzyme levels of individual enzymes and with their combinations. Supernatants were obtained using the same procedure and freeze dried. These samples were analyzed for color (L, a, b values), brightness, cold water solubility. Their theaflavin, thearubigins and total polyphenol content were also analyzed. Sensory properties of the samples were evaluated using a trained tasting panel. Each experiment was repeated thrice. Data were statistically analyzed by performing Duncun Multiple Range Test ( $P < 0.05$ ) and sensory evaluation data were statistically analyzed by performing Freidman test using Minitab 17. According to the results of preliminary study .Color of tannase treated sample ( $10.10 \pm 0.61$ ) was significantly higher than that of viscozyme treated sample ( $8.37 \pm 0.52$ ) but its brightness ( $11.89 \pm 1.18$ ) was significantly less than that of viscozyme treated sample ( $13.47 \pm 0.99$ ). Furthermore, turbidity of viscozyme treated sample ( $4.85 \pm 1.20$ ) was significantly lower than that of tannase treated sample ( $16.87 \pm 2.45$ ). Lowest turbidity levels were evident at enzyme level of 0.3% for both tannase ( $16.86 \pm 2.2$ ) and Viscozyme ( $4.85 \pm 1.20$ ).