# EFFECTS OF EXTRACTION OF TEA WITH TANNASE AND VISCOZYME ENZYMES ON PHYSIOCHEMICAL AND SENSORY PROPERTIES OF COLD-WATER-SOLUBLE INSTANT BLACK TEA

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# ABSTRACT

Development of haze is the major obstacle in manufacturing cold-water-soluble instant black tea. As a solution enzymatic treatments have been invented. These methods involve treating tea extract with various enzymes. No studies have been undertaken to introduce enzyme treatments before extraction of tea. Therefore, present study was undertaken to investigate the effects treating tea with Tannase and Viscozyme enzymes before extraction on physicochemical properties of cold-water-soluble instant black tea. Firstly, an experiment was conducted for the optimization of enzyme levels. Black tea samples (50 g each) were treated with five different levels (0.02%-0.1%) of Tannase and Viscozyme enzymes dissolved in 150 ml of distilled water separately and incubated at 40°C for 40 minutes., Then 150 ml of boiling water was added to the each enzyme treated samples and they were heated to 95°C using a hot plate. Then samples were allowed to brew for 10 min and extracts were obtained by filtering through a nylon cloth. Extracts were allowed to cool to room temperature, centrifuged at 3500 rpm for five minutes and the supernatants were obtained. Supernatants were analyzed for total polyphenol content, turbidity, and total soluble solids content using standard method. Secondly, an experiment was conducted by following similar procedure after treating black tea samples with combination of enzyme at optimized levels. Supernatants were freeze dried and analyzed for Theaflavin, thearubigins and caffeine contents. Each experiment was repeated thrice. Data were statistically analyzed by performing Duncun Multiple Range Test and Dunnets' test ($P<0.05$). Optimum levels of enzymes were selected based on the turbidity level. Lowest turbidity level was observed in samples treated with 0.06% of both Tannase and Viscozyme enzymes. Turbidity of sample treated with enzyme combination (88.2±5.2) was significantly lower than that of control (99.4±5.5). Further, sample treated with enzyme combination was significantly higher in Theaflavin content (1.3±0.1%) and brightness (88.8±1.4) than the control (1.0±0.1% and 70.2±2.8 respectively). It can be concluded that treating tea with combination of Viscozyme and Tannase before extraction will improve physicochemical properties of cold-water-soluble instant black tea.



*Keywords*: Instant black tea, Viscozyme, Tannase, Cold-water-solubility.