ABSTRACT

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COMPARISON STUDY OF ANTIOXIDANT ACTIVITY IN WHITE TEA AND BLACK TEA (*Camellia sinensis*)
(xvii + 83 pages, 8 tables, 19 figures, 12 appendixes)

White tea have higher phenolics content than any other types of tea, which possess’ antioxidant properties. The steeping method used to prepare tea can affect the tea infusion’s composition, such as its phenolics. The addition of ascorbic acid can increase the antioxidant activity of tea infusion. This research is designed to compare the effect of steeping method and ascorbic acid concentration added to increase the antioxidant activity in white and black tea infusion. Both white and black tea were steeped with hot water steeping method with different temperatures (70, 80, 90, and 100 °C) for 3 minutes and in cold water steeping method (25 °C) with different durations (60, 120, 180, and 240 min). Based on its antioxidant activity (IC₅₀), the best temperature for hot water steeping method (90 and 100 °C for white and black tea respectively) and best steeping duration for cold water steeping (120 and 180 min) were chosen. The ascorbic acid with various concentrations (2, 4, 6, 8, 10, and 12 ppm) was added to the tea infusion. The antioxidant activity improvement (inhibition (%)) then measured against tea infusion without the addition of ascorbic acid. In white tea infusion, the highest improvement of antioxidant activity was 38.13%, reached with combination of hot water steeping method and 12 ppm of ascorbic acid. In black tea infusion, the highest improvement of antioxidant activity reached with addition of 12 ppm of ascorbic acid, with increase the antioxidant activity by 30.37% in both steeping method.

Keywords: white tea, black tea, *Camellia sinensis*, ascorbic acid, antioxidant, steeping