



Development of a Biosensor Test Kit Containing Butterfly Pea and Red Cabbage Extracts for Heatstroke Risk Assessment

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Abstract

This project aims to investigate the effectiveness of a test strip containing extracts from butterfly pea (*Clitoria ternatea*) and red cabbage (*Brassica oleracea* var. *capitata* f. *rubra*) for assessing the risk of heat stroke. The test strip utilizes anthocyanin extracts, which exhibit color changes in response to variations in pH. The experiment began with the extraction of anthocyanins from the natural plant sources, followed by an investigation of their color changes across different pH levels. The extracts were then coated onto filter paper with suitable sweat-absorption properties.

The results demonstrated that the developed test paper successfully changed color according to the pH of sweat. Sweat pH was found to be associated with the lactic acid concentration in sweat. As the acidity of sweat increased, the lactic acid level also increased, indicating a higher risk of heat stroke. Therefore, the pH test strip developed in this study is a suitable method for rapid risk assessment and provides an effective tool for monitoring and evaluating the risk of heat stroke.

Keywords: Heat stroke, Global warming, Indicator, Acidity



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