

Optimization of Chemical properties, Sensory Descriptive and Consumer Acceptance of Jiaogulan tea Using Response Surface Methodology (RSM)

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ABSTRACT

Jiaogulan (Gynostemma pentaphyllum, GP) is a Chinese medicinal herb which can grow in Thailand. The objective of this study was to optimize the chemical component, the sensory quality and consumer acceptance of Jiaogulan tea. The sensory descriptive analysis was conducted to describe the sensory properties of Jiaogulan tea. The hedonic scaling method was used to measure the consumer acceptability of this product (n=50). The chemical properties- total saponin and antioxidant activity- were analyzed. The two- -factors rotatable design (pentagon design) with saponin content (0-500 mg) and water (50-250 ml) was employed to optimize the results by using the Response Surface Methodology (RSM). The result showed that Jiaogulan tea could be described in terms of 13 attributes by the sensory descriptive analysis. Consumers' acceptability test indicated that they liked this tea if the saponin content was not too high. The optimization result of the maximum chemical components overlaid with the acceptability score (> 6). Based on response surface plots, the optimum dried Jiaogulan contained 292mg of saponin in 100 ml of hot water. In conclusion, this study suggests that the formulation of Jiaogulan tea should be in the optimum concentration so that consumers will accept this tea.

Key words: Jiaogulan, *Gynostemma pentaphyllum*, sensory descriptive analysis, Response Surface Methodology (RSM), optimization

INTRODUCTION

Jiaogulan (*Gynostemma pentaphyllum*, GP) is a Chinese medicinal herb called "Amachazuru" in Japanese (Blumert and Liu, 2003) and "Panjakan" in Thai. *G. pentaphyllum* (family *Cucurbitaceae*) is a perennial liana. The stems of the plant grow like vines and the leaves have five oval-shaped, saw-toothed edges with