

THE IMPACT OF FERMENTATION USING *RAPI TAPAI* ON THE
PHYSICOCHEMICAL AND SENSORY CHARACTERISTICS OF BUTTERFLY
PEA (*Clitoria ternatea*) FLOWER EXTRACT

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STATEMENT BY THE AUTHOR

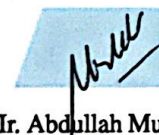
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ABSTRACT

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This study investigated the effects of fermentation using *ragi tapai* on the properties of butterfly pea flower (*Clitoria ternatea*) extracts from Pamulang and Cianjur. The high viscosity of the extract, mainly caused by sugars, was addressed by fermentation to reduce sugar content while observing its impact on color, anthocyanins, and metabolite composition. Fermentation lowered viscosity by converting sugars into ethanol and organic acids, confirmed by GC-MS metabolomics. PCA showed that both Pamulang and Cianjur samples shifted similarly after fermentation, but Cianjur samples had stronger changes, possibly due to higher sugar levels. Sugars also played a role in stabilizing anthocyanins through glycosylation. The reduction of sugars during fermentation helped lower viscosity while maintaining color stability. Statistical analysis confirmed significant changes across pH, Brix, titratable acidity, anthocyanin content, viscosity, and color stability. Overall, *ragi tapai* fermentation shows potential in improving butterfly pea extract for product development by reducing viscosity without major color loss.

Keywords: *Butterfly pea flower, Clitoria ternatea, ragi tapai, fermentation, viscosity, anthocyanin, metabolomics, stability*



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DEDICATION

This thesis is dedicated to everyone who has supported and encouraged me throughout this journey. Your constant motivation, patience, and guidance have made this work possible.



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