EYE DROP PRODUCT DEVELOPMENT FROM BUTTERFLY PEA EXTRACT

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Eye infections are prevalent among individuals and commonly treated with commercially available chemically synthesized eye drops. However, there is a growing interest in herbal medicine, with approximately 80% of the global population utilizing it. In line with this, the present study aims to develop herbal-based eye drops using butterfly pea as the main ingredient. Butterfly pea is recognized for its abundant anthocyanin content, which possesses potent therapeutic properties against eye infections. Ultrasound-Assisted Extraction, autoclave sterilization, disk diffusion test, and macrodilution were employed as key methodologies in this investigation. Results revealed that the double-flower variant of butterfly pea exhibited higher levels of anthocyanin content (138.842 mg/L) and total phenolic content (657.363 mg of GAE/gram extract). The addition of 2% L-Histidine effectively stabilized the anthocyanin compound. Autoclave sterilization demonstrated efficacy in ensuring extract sterility. In addition, the commercial products without herbal ingredients exhibited a larger inhibition zone of 12.3 mm, while the formulated herbal eye drops demonstrated significant inhibition of *Staphylococcus aureus* growth, with an inhibition zone diameter of 8.3 mm.

Keywords: Eye Drops, Butterfly Pea, Anthocyanin Stability, Anthocyanin Sterilization, Antimicrobial Activity

DEDICATION

I dedicate this work to my family, lecturers, friends, all Indonesian undergraduate students, and the future of my country, Indonesia.

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