PROCESS DEVELOPMENT FOR THE PRODUCTION OF CYMBOPOGON CITRATUS AND ZINGIBER OFFICINALE ROSCOE LIQUID EXTRACTS IN HERBAL INDUSTRY

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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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Development of herbal product with α-glucosidase (AGI) activity using lemongrass and ginger extract has been initiated in the previous studies. However, the previous developments were still in the laboratory scale capacities. In order to bridge the development for commercialization, pilot scale studies are essential to minimize trouble in the industrial scale production. The possible process scenarios and outcome were predicted based on the data from previous research. Process scenarios were made based on the ideal laboratory process condition and the common practices in herbal industries. Material balance calculations were made with the variations of process scenarios and types of solvent. Most extraction yields decrease by using the processes with adaptations, except for the effect of sun drying method on ginger. Both lemongrass and ginger were predicted to have higher AGI activity when extracted using ethanol. Drying was predicted to decrease the AGI activity in lemongrass, but it was expected to increase the AGI activity in ginger. The recommended process scenario to be further executed in pilot scale trials was the process with sun drying, rewashing, re-drying and evaporation steps using ethanol as the solvent for both lemongrass and ginger.
Keywords: Lemongrass, Ginger, Cymbopogon citratus, Zingiber officinale Roscoe, Aqueous extraction, Ethanolic extraction, Pilot scale.

DEDICATION

I dedicate this work to my family and friends.

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