

**REPURPOSING CHEESE WHEY AND SUGAR MOLASSES AS GROWTH  
MEDIUM FOR THE CULTIVATION OF *Geotrichum candidum***

By  
Antonius Georgio  
11505021

BACHELOR'S DEGREE

in

FOOD TECHNOLOGY  
FACULTY OF LIFE SCIENCE AND TECHNOLOGY



SWISS GERMAN UNIVERSITY  
The Prominence Tower  
Jalan Jalur Sutera Barat No. 15 Alam Sutera  
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July 2019  
Revision after the Thesis Defense on 17 July 2019

### 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

### REPURPOSING CHEESE WHEY AND SUGAR MOLASSES AS GROWTH MEDIUM FOR THE CULTIVATION OF *Geotrichum candidum*

By

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Cheese whey, a by-product of cheesemaking, is a potential pollutant that must not be disposed into fresh water bodies. Cheese ripening microorganisms are crucial ingredients that determine the final cheese quality, yet they are only available as imported commodities in Indonesia. Cheese whey, a rich source of amino acid, along with sugar molasses, a source of convenient carbon, are potential raw ingredients for a growth medium to cultivate cheese fungus *Geotrichum candidum*. Six formulas of whey-molasses media were inoculated with *G. candidum*, each having various carbon-to-nitrogen (C/N) ratios over 48 and 120 hours incubation time. Biomass and pH histories were monitored every six hours over the course of fermentation. The results show that the medium whose C/N ratio was close to 5.85 yield high final biomasses due to faster growth rate and longer growth phase time. Higher C/N ratios decreased growth rate and growth phase time, however compared with control (cheese whey only), media with C/N ratio of more than 11.58 suffers lower growth. The pH of the medium increased at the point when convenient carbon was depleted, and amino acid metabolism begun. In the case of control, amino acid metabolism occurred throughout fermentation.

Keywords: *cheese whey, growth media, Geotrichum candidum, biomass yield*



## DEDICATION

I dedicate this work to future thesis students. There is so much to learn from this research, that I highly recommend it as a thesis topic.



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