CYTOTOXICITY OF *ANNONA MURICATA* EXTRACT WITH ADDITION OF *ALLIUM SATIVA*, *CURCUMA MANGGA*, AND BROMELAIN FOR BREAST AND LIVER CANCER TREATMENTS

By

Dimas Prasetyo
11405010

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SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

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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.

Dimas Prasetyo

Student Date

Revision after the Thesis Defense on the 25th of July 2018

Approved by:

Dr. rer. nat. Maruli Pandjaitan

Thesis Advisor Date

Dr. rer. nat. Filiana Santoso

Thesis Co-Advisor Date

Dr. Dipl. -Ing. Samuel P. Kusumocahyo

Dean Date

ABSTRACT

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Dimas Prasetyo
Dr. rer. nat. Maruli Pandjaitan, Advisor
Dr. rer. nat. Filiana Santoso, Co-Advisor

SWISS GERMAN UNIVERSITY

Soursop leaves, garlic, and turmeric extract were known to have anticancer properties. A mixture of the 3 extracts (GST) has shown to have an even higher anticancer activity according to past studies. This study aims to utilize bromelain, an enzyme found in pineapple which has shown to be cytotoxic towards cancer cells to further increase the anticancer activity of the GST extract mixture. The analysis was done using NADH oxidase assay, brine shrimp lethality assay and MTT assay.

The analysis of NADH oxidase inhibition rate was done using enzymatic reactions and the addition of bromelain increased the inhibition rate of the GST extract mixture from 41.244% up to 54.378%. The results of the MTT Assay against T47D breast cancer cells showed that the addition of bromelain could increase the anticancer activity of the GST extract mixture by 17.85%, from IC_{50} value of 32.45 ppm to 27.535 ppm and the activity increases in relation to the amount of bromelain added. MTT assay was also tested against HepG2 liver cancer cells but showed significantly lower potency even with increased amounts of bromelain. Lastly, brine shrimp lethality assay showed that the addition of bromelain could increase the cytotoxicity of the extracts by 28.38%.

Keywords: Annona muricata, Allium sativa, Curcuma mangga, bromelain, anticancer

DEDICATION

I dedicate this work to everybody who is fighting against cancer and
to all the people who have lost the person in their lives to cancer.
Also, to all the people who have supported me throughout my thesis work.

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