

**DEVELOPMENT OF A NON-INVASIVE RAPID DETECTION KIT FOR
DENGUE NS1 ANTIGEN USING SPIKED HUMAN SALIVA**

By

Janette Salim
12106055

BACHELOR'S DEGREE
in

BIOMEDICAL ENGINEERING
LIFE SCIENCES AND TECHNOLOGY



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

17 July 2025

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 acknowledgment is made in the thesis.

Janette Salim

Student

July 14, 2025

Date:

Approved by:

Kholis Abdurachim Audah, M.Sc., Ph.D.

Thesis Advisor

July 14, 2025

Date:

Muhammad Yusuf, M.Si, Ph. D.

Thesis Co-Advisor

July 14, 2025

Date:

Dr. Hery Sutanto M.Si. S.Si

Dean

July 14, 2025

Date:

Janette Salim

ABSTRACT

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By

Janette Salim

Kholis Abdurachim Audah, M.Sc., Ph.D, Advisor

Muhammad Yusuf. M.Si, Ph. D, Co-Advisor

SWISS GERMAN UNIVERSITY



A precise and prompt test result in the concurrent epidemic disease of (sub-)tropical countries has been an overlooked key concern due to the limited resources and settings. One of the most striking diseases is dengue fever, a mosquito-borne viral infection that can yield a variety of symptoms, including mild flu-like illness and a severe, potentially fatal condition. It is predominantly spread by *Aedes aegypti* mosquitoes that sting during the day. The present cornerstone of clinical diagnosis is the examination of blood samples taken from suspected patients to detect viral components or surrogate markers for infection. This study focuses on investigating the feasibility of detecting the Dengue virus through Non-structural protein 1 antigens using Lateral flow immunoassay. It aims to develop a non-invasive diagnostic approach through saliva that was artificially constructed as a medium to substitute for a patient's saliva, under ethical concerns. The result demonstrated the dose-dependency of the utilized mucolytic agent, N-Acetylcysteine, in the detection of NS1 protein antigen in the optically detectable concentration range of detectable measure in saliva.

Keywords: Dengue virus, Non-structural protein 1, Lateral flow immunoassay, N-Acetylcysteine, Dose-dependency.



DEDICATION

This thesis is dedicated to advancing scientific innovations concerning diagnostic care through a simpler approach for the future of my beloved country, Indonesia.



ACKNOWLEDGEMENTS

First and foremost, I would like to thank God the Almighty for the bountiful blessings and unwavering guidance in illuminating my path. His presence has made it possible for me to come this far.

I express my sincere gratitude to my parents for their loyal support, encouragement, and understanding. Their roles in my educational journey have been invaluable. This thesis is a credit to both their devotion and my efforts.

I also extend my profound appreciation to my advisor, Mr. Kholis Abdurachim Audah, M.Sc., Ph.D., and my co-advisor, Mr. Muhammad Yusuf. M.Si, Ph. D., from the faculty of Chemistry at Padjadjaran University. They graciously provided noteworthy bits of their knowledge and skills, which served as the foundation for my investigation. Their contributions strengthened not only the methodology but also the entire execution of the dissertation. Despite their hectic schedule, their willingness to provide constructive criticism and additional feedback was incredibly insightful. From beginning to end, they believed in my ability not just to accomplish a degree but to do it with excellence.

I am extremely grateful to my wonderful friends, who gave me much-needed fun, encouragement, and distractions when I needed them the most. Thank you for always listening to my rants and believing in me.

Lastly, thank you, Darren Putranto, for confiding in me and for your continual encouragement. Your reassurance, compassion, and patience have been indispensable. Thank you for being my rock and always being compassionate enough to make me happy, even when I was anxious.

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