

**EVALUATION OF PROTEIN PROFILE IN NON-SOY TEMPEH AS
FUNCTIONAL FOOD FOR MUSCLE RECOVERY AND MUSCLE
GROWTH**

By

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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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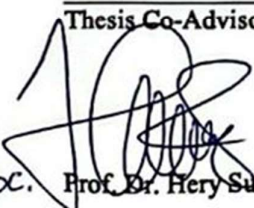


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ABSTRACT

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This study assessed the nutritional protein profiles of non-soybean tempeh derived from mung bean, red bean, velvet bean, and jack beans as functional foods to support muscles. The total nitrogen content was determined through Kjeldahl analysis, amino acids content in Gas Chromatography-Mass Spectrometry (GC-MS) and High-Performance Liquid Chromatography (HPLC). The results indicated that tempeh made of velvet bean and jack bean are in the highest protein levels (32.90 and 32.17%, respectively). Velvet bean tempeh has the most leucine (1,187.64 mg/100g) that is one of the major branched-chain amino acids (BCAA) in boosting muscle protein building. Mung bean tempeh, however, has the highest amount of lysine (1,176.32 mg/100g) that plays an important role in tissue repair. In contrast, red bean tempeh showed the lowest protein and amino acid levels. The leucine in these non-soy legumes is lower than what is found in typical soy bean tempeh but the total protein and essential amino acids it contains means that it can support muscle growth and recovery. In conclusion, non-soy tempeh, particularly from velvet and mung beans, is viable functional foods. Although they may have limited BCAA content but the protein content and essential amino acid have potential for muscle growth and recovery.

Keywords: Non-soy Tempeh, Protein Profile, Functional Food, Muscle growth and recovery



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DEDICATION

I would like to dedicate this thesis to my beloved parents, whose unwavering support, encouragement, and unconditional love have been the foundation of my journey. To my siblings, thank you for always believing in me and standing by my side. I am also deeply grateful to my dearest friends, whose companionship, laughter, and motivation helped me push through the most challenging moments. This work reflects all your care, inspiration, and constant presence in my life.



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This report was made possible by the unwavering support of numerous individuals. I am profoundly grateful to my loving family, friends, relatives, colleagues, and everyone who has provided moral and material support, particularly:

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This thesis would not have been possible without the encouragement and support from my dearest family, friends, and colleagues. I am especially thankful to my parents, siblings, and close friends who have stood by me with unwavering love and motivation during this journey.

Lastly, I acknowledge that this thesis may still have limitations and shortcomings, for which I take full responsibility. Nevertheless, I hope the findings and insights presented in this work will contribute positively to the field of food science and plant-based nutrition in Indonesia.

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