



EVALUATION OF *IN VITRO* PROTEIN DIGESTIBILITY OF *Moringa oleifera* LEAVES WITH VARIOUS DOMESTIC COOKING

Harum Fadhilatunnur^{1*}, Fransisca² and Rike Tri Kumala Dewi²

¹*Department of Food Science and Technology, Faculty of Agricultural Technology, IPB University, Bogor, Indonesia*

²*Department of Food Business Technology, School of Applied Science, Technology, Engineering, and Mathematics, Universitas Prasetiya Mulya, BSD City, Indonesia*

*harum@apps.ipb.ac.id

<https://doi.org/10.34302/crpfst/2021.13.1.18>

Article history:

Received:
23 April 2020

Accepted:
25 February 2021

Keywords:

Antinutritional compound;
Domestic cooking;
Moringa oleifera;
Protein content;
Pepsin digestibility.

ABSTRACT

Moringa oleifera is gaining attention for having high protein content with balanced amino acid composition. However, as in other plant-based protein, its protein digestibility becomes of concern presumably due to the presence of antinutritional compounds such as tannins, phytic acid, and saponins. In this study, the effect of domestic cooking (blanching, steaming, boiling, and sautéing) to protein content, protein digestibility, and antinutritional compounds of Moringa leaf powder was investigated. Analysis revealed that the Moringa leaf powder contained 33.12% protein (with 90.52% pepsin digestibility), 41.97% carbohydrates, 7.56% fat, 9.77% ash, and 33.88% dietary fiber. The protein content and pepsin digestibility (>84%) were notably high and were comparable to those of other plant-based protein sources, such as soybean and peas. Protein content tend to increase with domestic cooking. The treatments applied did not manage to reduce phytic acid and saponins. Blanching and boiling significantly reduced the tannin content while, blanching and sautéing increased the saponin content. The pepsin digestibility remained the same despite of reduction in tannins. Correlation study showed that among the three antinutritional compounds, it was saponin which adversely affect the pepsin digestibility of Moringa leaf powder ($r=-0.463$). Overall, boiling seemed to be the best method of cooking for Moringa leaves in term of protein content and pepsin digestibility.