



EVALUATION OF ANTIBACTERIAL ACTIVITY, NUTRIENTS, AND TOTAL BACTERIAL COUNT OF MORINGA LEAF POWDER WITH VARIOUS DRYING METHODS

Rike Tri Kumala Dewi^{1✉}, Harum Fadhilatunnur²

¹Department of Food Business Technology, School of Applied Science, Technology, Engineering, and Mathematics, Universitas Prasetiya Mulya, Tangerang, Indonesia.

²Department of Food Science and Technology, Faculty of Agricultural Technology, IPB University, Bogor, Indonesia

✉rike.dewi@prasetiyamulya.ac.id

<https://doi.org/10.34302/crpjfst/2020.12.2.13>

Article history:

Received:

20 January 2020

Accepted:

31 May 2020

Keywords:

Anti-bacterial;

Drying;

Moringa, nutrients;

Total bacterial count.

ABSTRACT

Moringa leaves were widely used as raw material for food product. However, unsuitable drying method might cost the loss of antibacterial activity and nutrients content but still leave a high total bacterial count. The aim of this study was to determine the best drying method for moringa leaves, in terms of antibacterial activity, nutrients, and total bacterial count, in order to obtain valuable and safe product. Fresh leaves were dried by various drying methods, namely sun drying, room temperature (air) drying, oven drying, and freeze drying, and followed by grinding and sieving. Antibacterial activity of moringa leaf powder was analysed by Kirby-Bauer method with agar disk diffusion, total bacterial count by Total Plate Count, bioactive compound by colorimetric method, β -caroten by Thin Layer Chromatography, and some minerals by Atomic Absorption Spectrophotometry. The results showed that moringa with all drying methods could not inhibit the growth of *Vibrio cholerae* and *Bacillus cereus*, but freeze-dried, oven-dried, and air-dried moringa leaf could inhibit the growth of *Escherichia coli*. Freeze-drying also showed the higher of bioactive compound than the other methods. Furthermore, total bacterial count of freeze-dried moringa leaf powder was $<2.50 \times 10^2$ cfu/g while that of other drying methods were significantly higher ($>10^6$ cfu/g). However, freeze-drying also caused greater decrease in mineral content compared to the other drying methods. In short, freeze drying could be the best choice to obtain safe and valuable moringa leaf powder but with compromised mineral content.
