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Principal component analysis of antioxidant activities, total phenolic contents, and total flavonoid contents of turmeric (*Curcuma longa* L.)

(Article)

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Abstract

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Turmeric (*Curcuma longa* L.) is often used in the treatment of several diseases. Scientifically, turmeric has been shown to have antioxidant activity and the group of compounds that play a role in this regard is the curcuminoid, a compound belonging to the phenolic group. In addition, turmeric also contains secondary metabolites, such as flavonoids, which are also shown to have antioxidant activity. This study aims to determine the profile of total phenolic content, flavonoids, and antioxidant activity of turmeric extract from various markets in Central Java, East Java, and Special District of Yogyakarta and to perform Principal Component Analysis (PCA) for grouping the turmeric. Turmeric rhizome samples were prepared and macerated with methanol. The methanolic extracts were determined for its total phenolic content by the Folin-Ciocalteu method, flavonoids with $AlCl_3$ reagent, and antioxidant activity by DPPH method, and then subjected to chemometrics analysis using PCA dan Cluster Analysis (CA). The profiles of phenolic, flavonoid, and IC_{50} values in each sample were different due to various factors that influence the content of secondary metabolites. The results also revealed that PCA method did not succeed in grouping turmeric samples because there was no correlation among variables, but CA method could provide the grouping of turmeric samples into six groups based on the variables used. © 2020, Advanced Scientific Research. All rights reserved.

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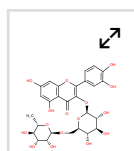
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Chemicals and CAS Registry Numbers:

gallic acid, 149-91-7; tannin, 1401-55-4

Manufacturers:

Device manufacturer:

Hitachi, Japan

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- 1 Buenger, J., Ackermann, H., Jentzsch, A., Mehling, A., Pfitzner, I., Reiffen, K.-A., Schroeder, K.-R., (...), Wollenweber, U.

An interlaboratory comparison of methods used to assess antioxidant potentials

(2006) *International Journal of Cosmetic Science*, 28 (2), pp. 135-146. Cited 47 times.

doi: 10.1111/j.1467-2494.2006.00311.x

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- 2 Chainani-Wu, N.

Safety and anti-inflammatory activity of curcumin: A component of tumeric (*Curcuma longa*) [\(Open Access\)](#)

(2003) *Journal of Alternative and Complementary Medicine*, 9 (1), pp. 161-168. Cited 666 times.

www.liebertonline.com/acm

doi: 10.1089/107555303321223035

[View at Publisher](#)

- 3 Chun, O.K., Kim, D.-O., Lee, C.Y.

Superoxide Radical Scavenging Activity of the Major Polyphenols in Fresh Plums

(2003) *Journal of Agricultural and Food Chemistry*, 51 (27), pp. 8067-8072. Cited 230 times.

doi: 10.1021/jf034740d

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