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Rohman, A.^{a b}, Widodo, H.^c, Lukitaningsih, E.^a, Windarsih, A.^f, Rafi, M.^d, Nurulhidayah, A.F.^e

Review on in vitro antioxidant activities of curcuma species commonly used as herbal components in Indonesia (2020) *Food Research*, 4 (2), pp. 286-293. Cited 1 time.

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^a Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Gadjah Mada, Yogyakarta, Indonesia

^b Institute of Halal Industry and Systems, Universitas Gadjah Mada, Yogyakarta, 55281, Indonesia

^c Gadjah Mada University, Yogyakarta, 55281, Indonesia

^d Department of Chemistry, Faculty of Mathematics and Natural Sciences, IPB University, Jalan Tanjung Kampus IPB Dramaga, Bogor, 16680, Indonesia

^e International Institute for Halal Research and Training (INHART), International Islamic University Malaysia, Gombak, Kuala Lumpur, 50728, Malaysia

^f Research Unit for Natural Products Technology (BPTBA), Indonesian Institute of Sciences (LIPI), Yogyakarta, Indonesia

Abstract

Free radicals, reactive nitrogen species (RNS) and reactive oxygen species (ROS) have been known to contribute several degenerative diseases such as cardiovascular diseases, aging, certain types of cancers, rheumatoid arthritis, neurodegenerative, and diabetes mellitus. In order to overcome the negative effects of these radicals, some scientists have explored some natural antioxidants from plants and its by-products. The antioxidant can be defined as any substances or samples capable of inhibiting free radical reactions in the oxidation reaction. Due to curcuminoids contained, Curcuma species such as Curcuma longa, Curcuma heyneana, Curcuma mangga, and Curcuma xanthorrhiza were commonly used for herbal components in some traditional medicine. Several in vitro tests been introduced and used to measure antioxidant activities, namely radical scavenging assay using 2,2'-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azinobis-(3-ethylbenzothiazoline-6-sulfonic acid) (ABTS•+), ferric reducing antioxidant power (FRAP), ferric-thiocyanate, phosphomolybdenum method, cupric ion reducing antioxidant capacity, metal chelating power, beta-carotene bleaching linoleic-ferric-thiocyanate, and thiobarbituric acid methods. This review highlighted the antioxidant activities in vitro of C. longa, C. heyneana, C. mangga, and C. xanthorrhiza through several tests. To perform this review, several reputed databases were analyzed and used. From this review, it can be stated that Curcuma species have powerful antioxidant activities, therefore they could be potential sources of natural antioxidants and can be used as food supplements. © 2019 The Authors. Published by Rynnye Lyan Resources.

Author Keywords

Antioxidant in vitro; Curcuma longa; Curcuma xanthorrhiza; Curcuminoids

Index Keywords

acetic acid ethyl ester, barbituric acid, butylcresol, citric acid, Curcuma extract, demethoxycurcumin, didemethoxycurcumin, edetate disodium, essential oil, ferric ion, flavonoid, free radical, herbaceous agent, linoleic acid, linoleic ferric thiocyanate, liver protective agent, plant extract, reactive nitrogen species, reactive oxygen metabolite, rutoside, saponin, sesquiterpene, starch, terpenoid, thiobarbituric acid, thiocyanate, turmeric, unclassified drug; ABTS radical scavenging assay, antimicrobial activity, antioxidant activity, antitumorigenic activity, Curcuma, Curcuma heyneana, Curcuma longa, Curcuma mangga, Curcuma phaeocaulis, Curcuma purpurascens, Curcuma xanthorrhiza, DPPH radical scavenging assay, Fasciola hepatica, ferric reducing antioxidant power assay, hydrogen peroxide scavenging assay, IC50, Indonesia, lipid peroxidation, moisture, nonhuman, rhizome, Short Survey, Zingiberales

Correspondence Address

Rohman A.; Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Gadjah MadaIndonesia; email: abdul_kimfar@ugm.ac.id

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