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In vivo antioxidant activities of Curcuma longa and Curcuma xanthorrhiza : A review (Article) (Open Access)

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Abstract

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Free radicals, reactive nitrogen species (RNS) and reactive oxygen species (ROS) have been known to contribute several degenerative diseases such as cardiovascular diseases, cancers, rheumatoid arthritis, neurodegenerative, and diabetes mellitus. In order to overcome the negative effects of these radicals, some scientist explores natural antioxidants from plants. Curcuma longa (Turmeric) and Curcuma xanthorrhiza (Javanese Turmeric) have been known as herbs and spices with antioxidant activities due to curcuminoid contained. Antioxidant can be defined as any substances or samples capable of inhibiting free radical reactions in the oxidation reaction. Several chemical and biological methods either in vitro or in vivo have been proposed, evaluated, and used for antioxidant evaluation of studied samples. Antioxidant activities in vivo can be measured by determining antioxidant enzymes which include catalase, glutathione reductase, superoxide dismutase, glutathione peroxidase, and glutathione S-transferase. The antioxidant enzymes increased while the lipid peroxidation decreased for both Curcuma species when research using animal models. This present review highlights the potential use of C. longa and C. xanthorrhiza as natural antioxidants in vivo. Based on in vivo studies, Curcuma species are potential sources of natural antioxidants, which can be used as food supplements.

SciVal Topic Prominence

Topic: Curcumin | Demethoxycurcumin | Turmeric Extract

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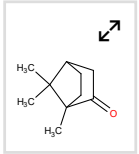
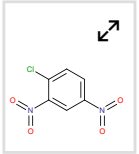
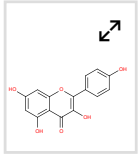
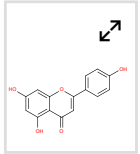
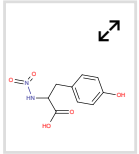
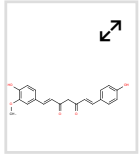

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Indexed keywords

EMTREE drug terms: alpha phellandrene | apigenin | borneol | camphor | catalase | cineole | Curcuma longa extract | Curcuma xanthorrhiza extract | epicatechin | glutathione | glutathione peroxidase | glutathione reductase | glutathione transferase | kaempferol | luteolin | malonaldehyde | manganese | quercetin | reactive nitrogen species | reactive oxygen metabolite | superoxide | superoxide dismutase | thiobarbituric acid reactive substance | unclassified drug

EMTREE medical terms: alanine aminotransferase blood level | alkaline phosphatase blood level | antioxidant activity | Article | cardiovascular disease | Curcuma xanthorrhiza | degenerative disease | diabetes mellitus | dietary supplement | enzyme activity | human | in vivo study | lipid peroxidation | oxidative stress | rheumatoid arthritis

Chemicals and CAS Registry Numbers:

alpha phellandrene, 99-83-2; apigenin, 520-36-5; borneol, 10385-78-1, 507-70-0; camphor, 464-49-3, 76-22-2, 8008-51-3; catalase, 9001-05-2; cineole, 470-82-6, 55962-72-6; epicatechin, 490-46-0; glutathione, 70-18-8; glutathione peroxidase, 9013-66-5; glutathione reductase, 9001-48-3; glutathione transferase, 50812-37-8; kaempferol, 520-18-3; luteolin, 491-70-3; malonaldehyde, 542-78-9; manganese, 16397-91-4, 7439-96-5; quercetin, 117-39-5; superoxide, 11062-77-4; superoxide dismutase, 37294-21-6, 9016-01-7, 9054-89-1

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