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Protective effect of curcumin (*Curcuma longa*) against d-galactose-induced senescence in mice.

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Abstract

Brain senescence plays an important role in cognitive dysfunction and neurodegenerative disorders. Curcumin was reported to have beneficial effect against several neurodegenerative disorders including Alzheimer's disease. Therefore, the present study was conducted in order to explore the possible role of curcumin against d-galactose-induced cognitive dysfunction, oxidative damage, and mitochondrial dysfunction in mice. Chronic administration of d-galactose for 6 weeks significantly impaired cognitive function (both in Morris water maze and elevated plus maze), locomotor activity, oxidative defense (raised lipid peroxidation, nitrite concentration, depletion of reduced glutathione and catalase activity), and mitochondrial enzyme complex activities (I, II, and III) as compared to vehicle treated group. Curcumin (15 and 30 mg/kg) and galantamine (5 mg/kg) treatment for 6 weeks significantly improved cognitive tasks, locomotor activity, oxidative defense, and restored mitochondrial enzyme complex activity as compared to control (d-galactose). Chronic d-galactose treatment also significantly increased acetylcholine esterase activity that was attenuated by curcumin (15 and 30 mg/kg) and galantamine (5 mg/kg) treatment. In conclusion, the present study highlights the therapeutic potential of curcumin against d-galactose induced senescence in mice.

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