

Curcumin Protects the Brain Against Free Radical Damage

Curcumin enhances an enzyme that protects the brain against free radical damage, according to a paper presented at the Experimental Biology conference, April 17-21, 2004. The study paves the way for further research to determine if curcumin could prevent or reduce the progression of age-related neurodegenerative disorders such as Alzheimer's disease.

The human body possesses certain genes that regulate antioxidant activity. One of these genes, hemeoxygenase-1 (HO-1), is thought to defend brain cells that are exposed to oxidant challenges. In past studies, curcumin strongly encouraged the expression and activity of HO-1 in rat cells, indicating this turmeric component can help blunt the effects of oxidation.

In order to confirm these previous findings, and determine if curcumin could have the same effects in brain cells, researchers in the current study investigated curcumin's neuroprotective effects and its ability to induce HO-1 in cultured hippocampal neurons. Treatment with curcumin resulted in increased expression of HO-1 as well as a greater expression of antioxidant enzymes. Pre-incubation of the cells with curcumin resulted in enhanced cellular resistance to oxidative damage.

According to the researchers, the study indicates that curcumin could be used for therapeutic purposes as a powerful inducer of HO-1 that can protect brain cells against oxidative damage. The study authors call for additional in vitro and in vivo studies to determine if curcumin can prevent acute neurodegenerative conditions.

Reference:

Scapagnini G, Colombrita C, Calabrese C, Pascale A, Schwartzman ML, Abraham NG. Curcumin Cytoprotective Effect in Rat Astrocytes and Neurons is Mediated by Specific Induction of HO-1, presented at Experimental Biology 2003 Conference, Washington, D.C., April 17 - 21, 2004.