

# **Effect of the *Lycium barbarum* polysaccharides on age-related oxidative stress in aged mice.**

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Oxidative damage of biomolecules increases with age and is postulated to be a major causal factor of various physiological function disorders. Consequently, the concept of anti-age by antioxidants has been developed. *Lycium barbarum* fruits have been used as a traditional Chinese herbal medicine and the data obtained in in vitro models have clearly established the antioxidant potency of the polysaccharides isolated from the fruits. In the present study, the age-dependent changes in the antioxidant enzyme activity, immune function and lipid peroxidation product were investigated and effect of *Lycium barbarum* polysaccharides on age-induced oxidative stress in different organs of aged mice was checked. *Lycium barbarum* polysaccharides (200, 350 and 500 mg/kg b.w. in physiological saline) were orally administrated to aged mice over a period of 30 days. Aged mice receiving vitamin C served as positive control. Enzymatic and non-enzymatic antioxidants, lipid peroxides in serum and tested organs, and immune function were measured. Result showed that increased endogenous lipid peroxidation, and decreased antioxidant activities, as assessed by superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GSH-Px) and total antioxidant capacity (TAOC), and immune function were observed in aged mice and restored to normal levels in the polysaccharides-treated groups. Antioxidant activities of *Lycium barbarum* polysaccharides can be compable with normal antioxidant, vitamin C. Moreover, addition of vitamin C to the polysaccharides further increased the in vivo antioxidant activity of the latter. It is concluded that the *Lycium barbarum* polysaccharides can be used in compensating the decline in TAOC, immune function and the activities of antioxidant enzymes and thereby reduces the risks of lipid peroxidation accelerated by age-induced free radical.

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