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Neuroprotection in Glaucoma Using Gouqizi (Wolfberry)

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Aging is an important risk factor for various neurodegenerative diseases such as glaucoma and Alzheimer's disease (AD). Glaucoma is a common eye disease that may lead to irreversible blindness. Recent studies suggest that development of anti-aging drugs from Chinese medicinal herbs may be one of the possible interventions. The fruits of *Lycium barbarum* (or commonly known as Gou Qi Zi, or wolfberry), has been used for thousands of years in China and is believed to be effective as an anti-aging agent as well as nourishment of eyes, livers and kidneys. We have shown that aqueous extract of wolfberry provides neuroprotection to the eyes against degeneration in an experimental model of glaucoma.

Using a rat glaucoma model, we have shown that oral administration of *L. barbarum* polysaccharides (LBP) significantly reduced the retinal ganglion cells (RGCs) loss against elevated intraocular ocular pressure. One to 100mg/Kg LBP exerted the best neuroprotection of RGCs. We have also shown that the neuroprotective effects were, partly, mediated by modulating the activation status of microglia, 2) via direct up-regulation of neuronal survival signal β 2-crystallin, and 3) by regulating the Endothelin-1 (ET-1) biological effects.

In summary, our results show that wolfberry represents a potential neuroprotective agent which deserved to be further explored for preventing neurodegeneration in glaucoma.