

Comment on Isolation and Identification of Compounds from *Penthorum chinense* Pursh with Antioxidant and Antihepatocarcinoma Properties: Pinocembrin and Its Rapidly Emerging Neuroprotective Effects

I read with great interest the recent paper by Lu et al.¹ Pinocembrin exerts a number of neuroprotective effects.

Pinocembrin when administered to models of Alzheimer disease shows improvement in cognition. Some of these effects are mediated by a decrease in up-regulation of receptor for advanced glycation end products (RAGE) transcripts.² As a consequence, SAPK/JNK-c-Jun activation is mitigated. A simultaneous inhibitory effect is seen on p38MAPK-MK2-HSP27 activation. As a result, degeneration of neurons in the cerebral cortex, especially in the frontal lobe, is attenuated. The above cognitive protective effects are also mediated in part by up-regulation of bcl-2. Pinocembrin also causes inactivation of caspase-3 and restores the mitochondrial membrane potential, thus decreasing cognitive decline and progression of Alzheimer's disease.

Blood–brain barrier injury secondary to cerebral ischemia/reperfusion injury is also mitigated by pinocembrin administration.³ As a result cerebral edema is decreased and cerebral blood flow is improved. The advantage of pinocembrin is that it affords a wide “therapeutic time window”. The mitochondrial membrane potential is also modulated by pinocembrin administration, thus exerting further neuroprotective effects.⁴ Simultaneously, it decreases neuronal nitric oxide synthase, myeloperoxidase, and superoxide dismutase activity. These effects are seen in vivo as well as in vitro. As a result, there is a decline in reactive oxygen species.⁵ A simultaneous accentuation of glutathione levels is seen.

Pinocembrin also attenuates cognitive decline secondary to chronic cerebral hypoperfusion. It exerts these neuroprotective effects by modulating mitochondrial function in the affected neurons.⁶ The above examples clearly illustrate the significant neuroprotective effects of pinocembrin and the need for further studies in this regard.

Shailendra Kapoor*

7487 Crossing Place, Mechanicsville, Virginia 23111,
 United States

■ AUTHOR INFORMATION

Corresponding Author

*Phone: (865) 345-2346. Fax: (865) 678-6787. E-mail: shailendrakapoor@yahoo.com.

Notes

The authors declare no competing financial interest.

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