

Neuroprotective effect of *Withania somnifera* root extract incorporated organic tea in Parkinsonism

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Introduction

Perkinsonism:age related is an age-related progressive neurodegenerative disorder

Cause: loss of dopamine producing neurone

oxidative stress

mitochondrial dysfunction

da, Y ., Kitaichi, K., Nakayama, H., Ito, Y ., Fujimoto, Y ., Shimazawa, M., Nagai, H. and Hara, H. Ri
attenuates the MPTP induced neurotoxicity in mouse brain. *Brain Res.* 1082 (2006) 196-204

Withania somnifera and Parkinsonism

Withaferin A, (one of the major withanolides found in WS) can alter antioxidant enzyme activities (SOD, CAT and Glutathione peroxidase) (Panda, S. and Kar, A. Evidence for free radical scavenging activity of Ashwagandha root powder in mice. Indian J. Physiol. Pharmacol. (1997) 424-426)

Tea and parkinsonism

polyphenols and flavonoids are neuroprotective in neuro
primary cell culture(Bastianetto et al. 2000a, b)

organically produced tea possess better secondary metabolite th
inorganic tea(Brandt, K., and J. P. Molgaard. 2001. Orga
agriculture: Does it enhance or reduce the nutritional value of pl
foods? *J. Sci.Food Agric.* 81(9): 924-931)

Objective of the study

Combined effect of *Withania somnifera* root extract and green tea extract in parkinsonism

Antagonism between Withaferin A and EGCG

Experimental design

Changes in the levels of the activities of SOD and CAT

Control and experimental mice

Discussion

as well *Withania somnifera* might reverse the alterations in locomotor and motor coordination in 6-hydroxy dopamine-induced parkinsonic rats via an unknown mechanism (Ahmad, M., Saleem, S., Ahmad, A.S., Ansari, M.A., Yousuf, S., Hoda, M.N., Kamran, F. Neuroprotective effects of *Withania somnifera* on 6-hydroxydopamine induced parkinsonism in rats. *Human. Exp. Toxicol.* 24 (2005) 137-147)

Cumulative treatment of tea (organically cultivated) + WS decreased the levels of activities of SOD and CAT more in comparison to Tea and WS treated individually in the MPTP mice model.

Future work

Antagonism or synergistic effect study between
Withaferin A and EGCG

What is the exact mechanism of tea polyphenols and
withaferin A in lowering SOD and Catalase activity
Parkinsonism model?

Thank you
