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Neuroprotective effect of SNC-1, a biocatalysis processed ayurvedic plant extract as a promising ethnopharmaceutic treatment for Alzheimer's and Parkinson's disease

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The three ayurvedic medicinal plants *Withania somnifera*, *Embllica officinalis*, and *Bacopa monnieri*, were extracted by high-pressure static extraction using the Zippertex technology. The extracts were mixed to reach quantifiable amounts of active compounds identified by HPLC-MS analysis. The mixture of extracts was incubated with resting cells of the fungus *Beauveria bassiana* ATCC 7159. The fermentation promoted the fluidization of the starting dense mixture, while HPLC monitoring evidenced the disappearance of glucogallin from *E. officinalis* extract and the concomitant increase in Gallic acid content. While topical exposure of the chick embryo chorioallantoic membrane (CAM) to the non-fermented extract led to an extensive necrosis, the fermented extract was not toxic and reduced the CAM vascularization, supporting its antiangiogenic potency. The innocuity of the fermented extract was demonstrated using the *in vivo* LD₅₀ test, the morphological examination of internal organs of treated rats, as well as the evaluation of blood biomarkers of liver damage (aspartate aminotransferase and alanine aminotransferase). The fermented extract SNC-1 was developed as a nutraceutical antiangiogenic treatment of age-related macular degeneration and commercialized in an oral form named Ethnodyne-Visio. Furthermore, study showed that SNC-1 (dried from of Ethnodyne-Visio) was able to significantly protect neurons (cortical as well as dopaminergic neurons – *in vitro* models of Alzheimer's and Parkinson's diseases) from different injuries (β amyloid, mitochondrial toxins, glutamate). Additionally, SNC-1 stimulated neurite outgrowth). Interestingly these effects were still observed at low doses and were still efficient when the extract was applied up to 4h after the toxins application. Extensive efforts are dedicated to the identification of the active compound responsible of these effects. Clinical trials are underway to confirm the benefit of SNC-1 for Alzheimer and Parkinson patients.

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