

# Nutraceuticals and Nutrition Supplements

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## Sulfated pachymaran (SP) may protect against Parkinson's disease

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**A** *Poria cocos* is a medicinal herb widely used in China both as medicine and food. Pachymaran, an active component of *Poria cocos*, when chemically modified to sulfated pachymaran (SP) exhibits enhanced water solubility and enhanced bioactivities with respect to antioxidant, antitumor and immune modulation activities. We have examined the possible protective effect of SP against Parkinson disease (PD). PD is a neurodegenerative disorder of the central nervous system (CNS) common to older people. In a cell culture model, we have observed protective effects of SP on MPP+ induced PC12 cell death. SP prevented apoptosis in MPP+ induced PC12 cells via inhibiting the activation of procaspase-3, down-regulation of Bcl-2 and up-regulation of Bax. Moreover, an *in vivo* PD mouse model was established for validating the PD treatment efficacy of SP. We found that treatment with SP attenuated the damage of dopaminergic neurons in the substantia nigra and striatal neurons induced by 1-methyl-4-phenyl-1,2,3,6 tetrahydropyridine (MPTP). SP treatment reversed the changes in the number of tyrosine hydroxylase (TH) positive cells in substantia nigra and the changes of expression levels of Bcl-2, Bax in the midbrain and striatum when compared with MPTP-treated group. Hence, these studies provide evidence for the potential application of SP in the therapy of PD.

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## Microencapsulation and phytochemicals evaluation of Cook Island noni juice

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**N**oni (*Morinda Citrifolia* L) is a traditional herbal plant which has been used in human remedies for over 2000 years or more. As one of the most popular noni supplements, noni juice is increasing attention for health maintenance based on the phytochemicals including iridoids, xeronine, phenolics and flavonoids. Consumption of noni juice is linked to a variety of health benefits such as antioxidant, antimicrobial, anticancer and anti-inflammatory. However, noni juice is unacceptable by some consumers as its unpleasant flavor. Microencapsulation is a widely used technology in industry to protect bioactives but rarely been reported in noni juice industry. This study was aimed to investigate the methods of microencapsulation of Cook Island noni juice through spray-drying. Optimal parameters for retaining the bioactive components and masking the unacceptable flavor were studied and the phytochemicals changes during the processing were evaluated.

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