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A Bacoside containing Bacopa monnieri extract reduces both morphine hyperactivity plus the elevated striatal dopamine and serotonin turnover.

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Abstract

Bacopa monnieri (BM) has been used in Ayurvedic medicine as a nootropic, anxiolytic, antiepileptic and antidepressant. An n-butanol extract of the plant (nBt-ext BM) was analysed and found to contain Bacoside A (Bacoside A3, Bacopaside II and Bacopasaponin C). The effects of the BM extract were then studied on morphine-induced hyperactivity as well as dopamine and **serotonin** turnover in the striatum since these parameters have a role in opioid sensitivity and dependence. Mice were pretreated with saline or nBt-ext BM (5, 10 and 15 mg/kg, orally), 60 min before morphine administration and locomotor activity was subsequently recorded. Immediately after testing, striatal tissues were analysed for dopamine (DA), **serotonin** (5HT) and their metabolites using HPLC coupled with electrochemical detection. The results indicated that nBt-ext BM significantly ($p < 0.001$) decreased locomotor activity in both the saline and morphine treated groups. Additionally, nBt-ext BM significantly lowered morphine-induced dopamine (DA), dihydroxyphenylacetic acid (DOPAC), homovanillic acid (HVA) and 5-hydroxyindole acetic acid (5-H1AA) upsurges in the striatum but failed to affect DA, 5-HT and their metabolites in the saline treated group. These findings suggest that nBt-ext BM has an antidopaminergic/serotonergic effect and may have potential beneficial effects in the treatment of morphine dependence.

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