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Antidepressant effects of Hericium erinaceus in the forced swimming test and chronic mild stress models of depression

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Objectives: In the present study, two classic animal models: the forced swimming test (FST) and the chronic mild stress (CMS) model were used to evaluate the antidepressant-like activities of Hericium erinaceus (HE).

Materials and Methods

1. Animal grouping and drug administration

- A total of 60 male mice were allowed 1 week to adapt to the laboratory
- Divided into five different groups (n = 12 per group), i.e., CON group, 10 mg/kg fluoxetine (FLU) group, 100 mg/kg HE group, 200 mg/kg HE group,

2. Forced swimming test

- glass cylinder (20 cm in height, 14 cm in diameter) filled with 12 cm high water
- forced to swim for 6 min, and the immobility time during the final 4-min

3. CMS procedure in rat

- food or water deprivation (23h); cage tilt (45°, 23 h); continuous overnight
- illumination; soiled cage (100 ml of water spilled onto the bedding (23 h); - cold water swimming (4°C for 5 min); shaking on the rocking bed (200Hz for 5min)
- empty water bottles (23h); 2h behavior restraint (diameter: 8cm, length: 20cm); intermittent illumination (light on and off every 2h).-for 5 weeks

Results

○ The results of the present study demonstrate that HE has antidepressant-like effects in the FST and CMS model. Sub-acute administration of HE resulted in a dose-dependent reduction of the immobility time in the FST.

○ Chronic treatment with HE also reversed the decreased activity in the open field test, and prevented the prolongation of latency of feeding in the NIH test displayed by CMS rats.

○ These behavioral data are in agreement with previous work examining the effects of chronic treatment with conventional antidepressants, such as fluoxetine and imipramine.

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