Background: Loganin is a major iridoid glycoside obtained from Corni fructus (Cornus officinalis et Zucc) and demonstrated to have anti-inflammatory, anti-tumor and osteoporosis prevention effects. However, there has been limited information available on how loganin affects central nervous system. The current study aims to investigate the hypnotic effect of loganin in rodents.

Methods: Locomotor activity was measured by Open-field Test. The hypnotic effects of loganin (5, 20 and 50 mg/kg, p. o.) were assessed by pentobarbital-induced sleep test and electroencephalographic (EEG) and electromyographic (EMG) analysis.

Results: Loganin exhibited an inhibitory effect on spontaneous locomotor activity on normal mice. The inhibitory effect of loganin in the test was from 5 min to 180 min after administration. 5 min after treatment with loganin, the sedative effect appeared promptly. In the sub-hypnotic dose of pentobarbital-induced sleep test, loganin (50 mg/kg, p.o.) increased the rate of sleep onset signally. And in the hypnotic dose of pentobarbital-induced sleep test, loganin at the dose of 50 mg/kg (p.o.) could significantly prolong the sleep time and potentiate the hypnotic effect of sodium pentobarbital in mice. Sleep architecture analyses in freely moving rats revealed that loganin markedly decreased the total wakefulness time and increased both NREM and REM sleep time during the 6 hours following drug administration.

Conclusion: Behavioral experiment suggested that loganin had the pharmacological activity of sedative and hypnotic effect. Taken together, these results provided the first experimental evidence of the significant sleep-enhancing effect of loganin in rodents. Moreover, this study added new scientific evidence and highlights on the therapeutic potential of Corni fructus in the development of phytomedicines with hypnotic properties.

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