

Combined administration of the mixture of honokiol and magnolol and ginger oil evokes antidepressant-like synergism in rats.

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Abstract

Magnolia bark combined with ginger rhizome is a common drug pair in traditional Chinese prescriptions for the treatment of depression. In the present study, we examined antidepressant-like effects of the mixture of honokiol and magnolol (HMM) from magnolia bark and essential oil from ginger rhizome (OGR) alone and in combination in chronic unpredictable mild stress (CUMS) of rats. Behavioral (sucrose intake, immobility time of forced swimming test) and biochemical parameters [serotonin (5-HT) in prefrontal cortex, hippocampus, and striatum, gastric mucosa cholecystinin (CCK) and serum gastrin (GAS) levels] were simultaneously examined in the CUMS rats. 20 mg/kg HMM alone, but not OGR, significantly increased sucrose intake and reduced immobility time in the CUMS rats. Moreover, 20 mg/kg HMM and 14 mg/kg OGR in combination exhibited significant synergistic effects on sucrose intake increase and immobility time reduction in the CUMS rats. HMM elevated 5-HT levels in various brain regions, and OGR reduced gastric mucosa CCK and serum GAS levels in the CUMS rats. These results suggested that the synergistic antidepressant-like effects of compatibility of HMM with OGR might be mediated simultaneously by regulation of the serotonergic and gastroenteric system functions. These findings also provided a pharmacological basis for the clinical application of this drug pair of magnolia bark and ginger rhizome in traditional Chinese medicine.

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