Antidepressant effects of XJ-Et-8 in mice chronically exposed to corticosterone

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High cortisol level in serum is one of the clinical features in depression. Exogenous administration of corticosterone (CORT) in rodents has been used as animal model of depression. Red resin of Dracaena cochinchinensis S.C. Chen, known as Chinese dragon’s blood, has been used as a famous and precious traditional medicine since ancient times by many cultures. XJ-Et-8 is a compound extracted from Chinese dragon’s blood. It has favorable effects on mouse models of Alzheimer’s Diseases through the up regulating the BDNF level in the brain. The present study aimed to evaluate the XJ-Et-8 as antidepressant using a mouse model of CORT administration. CORT (20 mg/kg/day) was administered subcutaneously for 3 weeks, and XJ-Et-8 was given orally during the last 2 weeks. After corticosterone administration, mice were sequentially subjected behavioral tests: open field test, social interaction test, novelty suppressed feeding test, and forced swimming test. Corticosterone administration induced depressive and anxious behaviors and decrease of phosphorylation in AKT/mTOR/CREB signaling pathway and of BDNF contents in the prefrontal cortex. XJ-Et-8 reversed these behavioral changes, increased phosphorylation level in AKT/mTOR/CREB pathway and BDNF expression. These results suggest that the XJ-Et-8 could be a potential compound as an antidepressant via activating the AKT/mTOR/CREB pathway and BDNF expression.