Boswellia Sacra (Bs7) Alleviates Behavioral Alterations and Improves Gabaergic System in Valproic Acid-Induced Autism

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ABSTRACT

Pre-natal and post-natal valproic acid (VPA) exposure in mice results in behavioral impairment, aberrant sensitivity to sensory stimuli, and self-harming behavior, hallmarks of autism. According to previous reports, Boswellia Sacra (BS7) has a protective effect on the brain. The goal of the current investigation was to assess how BS7 affected the neurobehavioral and metabolic changes caused by VPA in mice. Pregnant mice received a single intraperitoneal injection of VPA at a dose of 450 mg/kg on day 12.5 of gestation. After the birth, mice pups were orally administered with BS7 at a dose of 200 mg/kg daily from 14 to 40 days of age. Mice pups were placed through behavioral tests during the trial to evaluate motor skill growth, nociceptive response, locomotion, anxiety, and cognition. Following behavioral testing, mice were killed, and the brain was removed and subjected to biochemical analyses (glutathione, malondialdehyde, and nitric oxide) and histopathological analysis. Additionally, we examined the modulation of this pathway and the alteration in Gamma-amino butyric acid (GABA) production using Western blot analysis. According to our research, BS7 daily administration greatly reduced behavioral alteration, reversed the disorganization of the cerebellum and hippocampus, and significantly improved the VPA-induced neuroinflammation.

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