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**Chia seeds (*Salvia hispanica*) methanol extract: A potential natural anti-urolithic agent**

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**ABSTRACT**

Urolithiasis is a form of urinary system disease in which kidney stones develop when minerals are deposited in the renal, urinary bladder, and ureters. Twelve percent of the world's population is impacted by it. Long-term kidney stone deposition harms healthy kidney cells by generating free radicals. Because chia seeds (*Salvia hispanica*) have the best anti-oxidant activity, the current study's objective was to assess the anti-urolithiasis activity of the methanol extract of these seeds using an *in-vivo* approach on a rat model of urolithiasis induced by ethylene glycol (EG). The extract was prepared by macerating it with 100% methanol. An *in-vivo* investigation was performed on rats, where rats were split into six groups, and each group had six rats (n=6). Group-1 kept as vehicle control (normal control), group-2 was a disease control group (EG 0.75% v/v), group-3 was named as the reference group receiving Cystone<sup>®</sup> 750 mg/kg, groups from 4 to 6 were groups receiving treatment, and receiving different doses of the extract at 100 mg/kg, 300 mg/kg, and 700 mg/kg, orally for 21 days. The *in-vivo* anti-urolithiasis analysis of the extract revealed a significant increase ( $p < 0.001$ ) in urinary magnesium levels, urine volumes, kidney and body weights while significant decreases ( $p < 0.001$ ) were seen in urine parameters (such as oxalate, calcium, phosphate, sodium, and potassium) and serum parameters (such as uric acid, blood urea nitrogen, total proteins, and total albumin). When compared to the normal control group in histology, the disease control group had kidney stones, interstitial inflammation, and cell damage. No toxicity symptoms were noticed in the treatment group at a dosage of 700 mg/kg. Based on *in-vivo* research using histopathological, urine, and serum data, it can be said that the extract has anti-urolithiatic activity.

**Keywords:** Chia seeds, methanol extract, anti-urolithiasis activity, *in vivo* study