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(57) Abstract :

The present invention relates to the evaluation of Capsicum annum fruit extract for its antiurolithiatic potential. Ethanollic extract rich in flavonoids, phenols, saponins, and tannins was assessed through in vitro and in vivo models. In vitro studies demonstrated significant inhibition of calcium oxalate crystal nucleation and aggregation, with stronger effects during the aggregation phase compared to standard drug Cystone. In vivo studies using an ethylene glycol-induced urolithiasis model in Wistar rats showed that the extract reduced urinary calcium and uric acid levels, maintained urinary pH, and improved serum markers like creatinine and urea. Histopathological analysis revealed protective effects against renal tissue damage and crystal deposition. The findings support the use of Capsicum annum as a natural, effective, and safe therapeutic agent for the prevention and management of kidney stones.

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