The Gastroprotective Effects of *Salvia indica* L. and Selenium *In Vivo* Study

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Abstract

Salvia indica L. is a traditional therapeutic herb used for numerous health purposes, including intestinal and stomach disorders. The current investigation includes the phytochemical profiling, acute toxicity, and gastroprotective roles of *Salvia indica* leave extracts (SILE) in combination with selenium (known to facilitate mucosal regeneration, reduce lipid peroxidation, and increase antioxidant activity) in the gastric ulcer animal model. The phytochemical content of SILE was determined through Folin Ciocalteu/10% AlCl3 using a spectrophotometer. Thirty Sprague male rats were divided into five cages: groups A and B administered orally 10% Tween 20; group C was treated with 100 µg/kg selenium; groups D and E were treated daily with 500 mg/kg SILE and SILE + 100 µg/kg selenium, respectively, for 2 weeks. After ethanol delivery for gastric ulceration, all rats were anesthetized and sacrificed, and the stomach was analyzed using histological and biochemical assays. SILE showed higher total phenolic (246 mg GAE/g) than flavonoid (38 mg EQ/g extract). The toxicity test elucidated the safety of SILE supplementation in rats administered with up to 5 g/kg. Ethanol oral delivery provoked significant gastric mucosal injury, reduced mucin, and glycoprotein formation, upregulated HSP 70 proteins, and lowered Bax protein appearance in gastric tissues. Co-administration of SILE and selenium showed significant resistance against ethanol-mediated ulceration and restored stomach immune barriers. Furthermore, selenium or SILE ingestion positively modulated endogenous antioxidant enzymes and lowered inflammatory mediators (TNF-α and interleukin-6) and upregulated interleukin-10 cytokines. The combination of SILE + selenium therapy revealed significant synergistic gastroprotective potentials via different molecular mechanisms. This study tends to advocate that SILE with selenium supplementation can be used in formulation development and might be exploited as a nutraceutical with therapeutic approaches to manage gastric mucosal injuries.