Toxicity and Gastroprotective Activity of Taro Stem Extract (Colocasia esculenta L. Schott) in Acetylsalicylic Acid-Induced Gastric Mucosal Injuries in Rats

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Peptic ulcer is one of the world's major gastrointestinal disorders and affecting 10% of the world population. The drugs available in the market are often associated with side effects. Thus, it is needed to identify more effective and safe anti-ulcer agents. However, taro stem (Colocasiaesculenta L. Schott) have some chemical compounds that hypothesized have gastroprotective activity and low toxicity level. The goals of the present research are to determine the toxicity of taro stem extract (TSE) using Brine Shrimp Lethality Test (BSLT) and acute oral toxicity assay (OECD 423). Then, the gastroprotective effect is examined by phytochemical assays, antioxidant activity, and histopathological examination. The TSE gastroprotective experiment in aspirin-induced rats is divided into 4 groups (50, 100, 200, and 400 mg/kg) with omeprazole and sucralfate as reference controls. The phytochemical test showed that TSE positively contained flavonoid, terpenoid, saponin, and steroid. The extract had antioxidant activity measured 675.283 pg/ml. Based on data, TSE had no effect in toxicity assays. BSLT result showed LC50 of TSE was 7311.39 ppm which had very low toxicity. Acute toxicity showed no injury and mortality in rats. The histopathological examination revealed that aspirin shows severe damage in gastric mucosa. TSE treatment significantly suppressed the mucosa disruption in 400 mg/kg dose, inhibit edema the infiltration of leucocyte, and reduce the neutrophil infiltration into ulcerated tissue. TSE treatment also revealed increasing of surface mucosal glycoprotein accumulation. Therefore, TSE has high potential ability in gastric protection against the gastric mucosa injuries without any side effects.