

In vitro* proton-pump inhibitory effect of the leaves of *Breynia retusa

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ABSTRACT

Ulcer is a common problem with increasing incidence and prevalence attributed to several factors encountered during day to day life, such as stress, exposure to bacterial infection and the use of non steroidal anti inflammatory drugs. Mucosal damage, an initial step in ulcer development has been correlated with oxidative stress by reactive oxygen species (ROS) generation and hyper-secretion of HCl through H^+, K^+ -ATPase action. Thus a modest approach to control ulceration may be by scavenging ROS in the stomach and inhibiting H^+, K^+ -ATPase, a proton-pump for acid secretion in the parietal cells of gastric mucosa; although several antisecretory drugs such as H^+, K^+ -ATPase inhibitors- omeprazole, lansoprazole, ranitidine, famotidine and histamine H^2 receptor blockers are being used to control acid secretion, they produce adverse side effects on human health. Although, the introduction of proton-pump inhibitors for anti-ulcer therapy had revolutionized the treatment of peptic ulcers, there is still no complete cure for this disease. It has been shown that long term use of these drugs leads to various adverse and side effects. Ineffectiveness of different drug regimens and resistance to drugs have also been reported. Thus, there is an urgent requirement to identify more effective and safe anti-ulcer agents. A widespread search has been launched to identify new anti-ulcer therapies from natural sources. Herbs, medicinal plants and crude drug substances are considered to be a potential source to combat various diseases including gastric ulcer. *Breynia* species possess various medicinal values and the folklore claims of those medicinal values have been proved by various researchers. However, there are very few reports on the medicinal uses of *Breynia retusa*. The objective of our study was to analyse the inhibitory effect of the aqueous extract of the leaves of *Breynia retusa* on gastric H^+, K^+ -ATPase and thus establish its gastroprotective effect indirectly. The percentage of inhibition of proton-pump of the extract was 67% and the effect was comparable with the standard proton- pump inhibitor drug, omeprazole which exhibited 71% inhibition. The study thus opens a new avenue for an exhaustive investigation on the *in vivo* use of *Breynia retusa* as an anti-ulcerant.