

In vivo Activity of Pathogenic Bacteria on Natural Polyphenolic Compounds

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Abstract : Gastric ulcer is a major global health threat, and it is the leading cause of stomach cancer death worldwide. Helicobacter pylori bacterium is the most important etiologic factor for gastric ulcer. This infection is highly pervasive in South Asian developing countries, especially in India, Nepal, Sri Lanka etc. due to diversification in geographic area. Pathophysiology of gastric mucosal damage associated with non-invasive bacterium has not been justified in detail, but it leads to change in histopathology, immunochemistry of the gastric and duodenal region of host. The mechanism responsible for bacterial tissue tropism and mucosal damage in stomach varies during the disease and is not clearly described and understood scientifically in treatment and control of pathogenic organisms. Polyphenols are secondary metabolites of plants and are generally involved in defense against aggression by pathogens. 2-(3,4-dihydroxyphenyl)-3,5,7-trihydroxychromen-4-one and 1-hydroxy-5,7-dimethoxy-2-naphthalene-carboxaldehyde are polyphenolic compounds obtained from popular Indian medicinal plants ghavpatta (*Argemone speciosa* Linn.f) and Bael (*Aegle marmelos*) have long been used in traditional Ayurvedic Indian medicine for various diseases. They have promising effects on ulcer, as detailed investigation has been made in our laboratory. Therefore, the aim of the present study is to explore membrane-dependent morphogenesis of *H. pylori* and associated apoptosis-mediated cell death. Based on this we analyzed immune gene expression in stomach of experimental animals with *H. pylori*, using quantitative reverse transcription polymerase chain reaction (qRT-PCR). This revealed rapid induction of prostaglandin, interferon I (INF-I), interferon II (INF-II) and INF-I associated genes in the infected animal. Ultrastructural changes associated with *H. pylori* will be taken for advanced studies. This investigation shows that the biomarkers eradicate *H. pylori* bacterium caused gastric ulcer which is a major risk factor for gastric cancer.

Keywords : gastric ulcer, Helicobacter pylori, immunochemistry, polyphenols

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