



## *Helicobacter* Phytotherapy: Medicinal Plants Affecting *H. pylori* Infection in Iran

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### Abstract

*Helicobacter pylori* is a gram-negative, helical, and microaerophilic bacterium, and its infection affects the health of the community. This bacterium protects itself from stomach acid by having the enzyme urease. Nearly three decades after the discovery of this bacterium, no specific treatment regimen has been proposed that is able to eliminate the infection in patients. Besides, the different treatment regimens with different effects on the pathogen have been proposed. Widespread use of antibiotics and medicinal plants in treatment and eradication has led to the growth of antibiotic resistance. In this review study, the most important medicinal plants with inhibitory effect on *H. pylori* were reported. For this review study, keywords such as *H. pylori* bacterial infection, medicinal plants, extract and Iran were used. The databases searched for in those articles were Google Scholar, SID, Scopus, PubMed, Science Direct, and ISI search engines. Plants such as *Satureia hortensis* L., *Salvia officinalis*, *Mentha Piperita*, *Ziziphora tenuior*, *Mentha pulegium*, *Satureja khuzestanica*, *Thymus caramanicus*, *Thymus vulgaris*, *Zataria multiflora*, *Ocimum basilicum* L, *Salvia mirzayanii*, *Teucus frutus*, *Majus frutics*, *Rubus frutics*, *Geum Iranicum*, *Filipendula ulmaria* L, *Glycyrrhiza glabra* L., *Citrus sinensis*, *Argentin anserine*, *Bunium persicum*, *Crataegus aronia*, *Cuminum cyminum* L. and etc. were assessed. These are the most important medicinal plants affecting on *H. pylori* in Iran.

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### Introduction

*Helicobacter pylori* is a gram-negative, helical and microaerophilic bacterium (1). *H. pylori* infection is affected by the health status of the community so that it has a high prevalence in third world countries such as Iran (2). It protects itself from acidic conditions of the stomach with the enzyme urease (3). The prevalence of this infection in Iran has been reported in adults up to 90%. Its prevalence is up to 80% in developing countries and from 30 to 40% in developed countries (4,5). *H. pylori* plays an important role in the development of gastrointestinal diseases such as chronic gastritis, adenocarcinoma, lymphoma and peptic ulcer of the stomach (6, 7). About three decades after the discovery of this bacterium, no specific treatment

regimen has been proposed that can eliminate the infection in all treated patients, and different treatment regimens with different effects on the pathogen have been proposed (8). Extensive use of antibiotics in treatment and eradication has led to an increase in antibiotic resistance (9, 10). Medicinal plants are a valuable source of active medicinal substances that affect a variety of disorders and diseases (11, 12). Various studies have shown that herbal and medicine plants have an inhibitory effect on *H. pylori* (13, 14). In this review study, the most important medicinal plants with inhibitory effect on *H. pylori* were reported.

### Method for review

For this review study, keywords such as *H. pylori*, bacterial infection, medi-

nal plants, extract and Iran were used. The databases searched for in those articles were Google Scholar, SID, Scopus, PubMed, Science Direct, and ISI. Results

Medicinal plants as an anti-*H. Pylori*

*H. pylori* can cause a wide range of problems, from chronic gastritis, peptic ulcer disease, iron deficiency anemia and stomach cancer to diseases of the liver, cardiovascular system, skin and many other systems of the body. No vaccine has been developed for this infection so far, and treatments for it include the use of chemical drugs and herbs.

Table 1. Medicinal plants used as anti-*H. Pylori* in Iran