

In Vitro Assessment of Anti *Helicobacter pylori* Activity of Total Extract of *Tribulus triticum* and Its Fraction Benzoxazin by Cup Plate Methods

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Background & Objectives: *Helicobacter pylori* (Hp) is a gram negative bacteria which is related to gastritis, gastric ulcer, duodenal ulcer, and mucosal carcinoma. Emergence of multidrug resistant Hp strains encouraged the researchers to find new effective drugs. Especially medicinal plants which usually shows less side effects. The aim of this study was in vitro assessment of anti Hp activity of total extract of *Tribulus triticum* (a local Iranian medicinal plant) and its fraction Benzoxazin.

Methods: Total aqueous extract of aerial parts of the plant was prepared and in order to separate its components, liquid extraction with petroleum ether was used. Formation of three layers was the result of this extraction. Layers included water fraction, Petroleum ether was used. LC/MS system proved the existence of Benzoxazine derivative in the water fraction and the third's fraction. Anti *Helicobacter pylori* (Hp) effects of total extract and its third fraction (which were the layers formed after the extraction process) were examined by cup plate Methods and using standard 3 MacFarland based on CLSI. 50 biopsy samples of antrum was detected from patients who were endoscopic candidates in Milad and Fayazbakhsh hospitals of Tehran during 1390. All samples were isolated and diagnosed based on standard methods and biochemical tests. All isolated Hp strains confirmed by PCR Methods for ureC, too. Different dilutions (250,500,750 and 1000 $\mu\text{g/ml}$) of total extract were prepared. Clarythromycin E-test strip was used as control.

Results: Of 50 biopsy samples, 12 Hp strains were isolated. Rapid urease test were positive in all expect one biopsy sample. Existence of ureC in all isolates were confirmed expect one strain by PCR. By cup plate methods, resistant to diluents of 250 and 500 $\mu\text{g/ml}$ were detected in 66.6% of isolates. 50% of them were resistant to concentrations of 750 and 1000 $\mu\text{g/ml}$, too. 83.3% of strains were resistant to 3th fraction (Benzoxazin). Clarithromycin sensitivity detected in 62.5% of isolates, simultaneously.

Conclusion: This study was done as a pilot study for in vitro evaluation of antibacterial effect of total extract of *Tribulus triticum* by cup plate methods. Existence of resistant among 50% of isolates to concentrations of 1000 and 750 $\mu\text{g/ml}$ cannot clear the final result and need to continue this assessment on more strains. In contrast of the similarity of Benzoxazin



structure to Ofloxacin, existence of 83.3% of resistance among tested isolates shows no anti Hp effectivity of this fraction.

Keywords: *Helicobacter pylori*; *Tribulus triticum*; Benzoxacin

