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INVESTIGATION OF ANTIMICROBIAL ACTIVITY TO DETERMINE MIC VALUE OF CINNAMON BARK OIL AGAINST *HELICOBACTER PYLORI*

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Aim: To determine MIC-value of cinnamon-bark-oil in comparison with clarithromycin, also to investigate the effects of different parameters on antimicrobial activity of cinnamon-bark-oil.

Method: Agar dilution method was used to determine the MIC-value of clarithromycin and cinnamon bark oil(Sigma) by adopting CLSI recommendation and also different parameters were performed to investigate the effects on bacterial growth due to the difficult differentiation of *H. pylori* NCTC 11637 standart strain growth on cinnamon-bark-oil containing agar plates.

Serial dilutions of cinnamon-bark-oil were prepared in range of 1–1000 μg/mL. MHA with both 5% and 10% sheep blood containing various concentrations of cinnamon-bark-oil were prepared. Inoculum concentration of *H. pylori* was adjusted to McFarland No2, No3 and No4. Suspensions were inoculated 3 and 5 μL by spot and spreading directly onto agar plates and incubated at 37°C for 72 hours under microaerophilic conditions.

All assays were performed in triplicate.

Results: MIC-value of cinnamon bark oil and clarithromycin were found 8 and 0.125 μg/mL, respectively.No significant difference was found for colony growth by different McFarland scales and inoculum amounts. Because of the transparent and fragile colonies of *H. pylori,* spreading bacterial suspension directly onto agar plates was better to differantiate colony growth. Although, the different inoculum concentrations and amounts didn't effect the MIC-value, much more colonies were observed in McFarland3 and 4 in comparison to McFarland 2.

Conclusion: These results indicate that McFarland3 and/or 4 should be used to evaluate and to obtain the best growth of *H. pylori* for the antimicrobial activity of the cinnamon-bark-oil as an essential oil; and also spreading plate methodology could be considered instead of spots for exact decision of inhibition concentration.

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INCREASE IN THE RESISTANCE RATES OF *H. PYLORI* ISOLATES AFTER 5 YEARS

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Aim: The aim of study was to examine the antibiotic resistance of *H. pylori* isolates from Iranian dyspeptic patients and compare the rates with those obtained 5 years ago.

Methods: *H. pylori* isolates were obtained from 158 patients (137 with gastritis, 19 peptic ulcer and 2 with precarcerous lesions), 83 female and 75 male (19–86 years, mean age 45.5 years) using selective blood agar and microaerophilic incubation. Disk diffusion method was used to evaluate resistance of isolates to metronidazole, clarithromycin, tetracycline, amoxicillin and furazolidone with MICs (μg/mL) of 8, 2, 0.5, 1 and 1, respectively.

Results: Resistance rates were estimated basis of diameter of inhibition zone of ≥20 mm for all antibiotics except furazolidone (≥13 mm). Resistance rate of metronidazole was 81.64, clarithromycin %30.37, tetracycline %42.40, amoxcillin %27.21 and furazolidone %19.62.

Discussion: When compared with the results of our previous study in 2008, resistance rates to all the currently used antibiotics showed a significant increase. No significant difference was found between antibiotic resistance age, gender and gastric diseases.