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HHS Vulnerability Disclosure

Inhibitory and bactericidal activity of selected South African honeys and their solvent extracts against clinical isolates of *Helicobacter pylori*

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Abstract

The growing problem of antibiotic resistance by *Helicobacter pylori* demands the search for novel compounds, especially from natural sources. We evaluated the anti-*H. pylori* activity of six local honeys at different concentrations as well as their solvent extracts by the Hole Plate diffusion method. The minimum inhibitory concentration (MIC₅₀) of the two most active extracts of each honey was determined by the broth microdilution method; and the time kill assay of the most active extract of each honey determined by viability studies. Data were analyzed by one-way ANOVA test at 95% significance level. All the honey varieties as well as their solvent extracts demonstrated varying levels of antibacterial activity based on different mean zone diameters [16.0mm (crude) to 22.2mm (extract)] and percentage susceptibilities [73.3% (crude) to 93.3% (extract)] of the test isolates. The chloroform extracts of Pure Honey (PH) and Champagne Royal Train (CRT) recorded MIC₅₀ ranges of 0.01-10% and 0.625-10 % (v/v) respectively; that were not significantly different ($P > 0.05$) from amoxicillin (0.001-1.25mg/mL), the positive control. The most potent bactericidal effect against the test isolates was obtained with 5% v/v (1/2 MIC) concentration of chloroform extract of PH from 42-72 hrs. In conclusion, these honeys and their extracts could be leads for further investigation in the discovery of new natural anti-*H. pylori* compounds.

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