

Gallic Acid and its Esters as Anti-*Helicobacter pylori* Agents and Scavenger of Oxidants Produced by Neutrophils

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INTRODUCTION: *Helicobacter pylori* is one of major cause of chronic gastritis and peptic ulcer disease. Although the mechanism involved in gastric inflammation by this bacterium is not fully understood, it is known the important role of reactive oxygen species (ROS) produced by polymorphonuclear neutrophils (PMNs). **OBJECTIVES:** To evaluate the antioxidant activity of gallic acid and its esters on the oxidative burst of neutrophils and anti-*H. pylori* activity. **MATERIAL AND METHODS:** Gallic acid (G0) and its esters: methyl (G1), propyl (G3), hexyl (G6), octyl (G8) and dodecyl (G12) gallates, as well as, the ATCC 43504 strain of *H. pylori* were used. The scavenger capacity against ROS produced by PMNs was evaluated through luminol-dependent chemiluminescence assay (QLDLum) stimulated by zymosan or *H. pylori*. The antimicrobial activity was determined by broth microdilution technique. **RESULTS AND DISCUSSION:** Regarding the capacity of the tested compounds (10 μ M) as scavenger of ROS produced by activated PMNs, the results were: G8 ($99,7 \pm 0,9$) = G6 ($98,3 \pm 0,9$) > G3 ($88,5 \pm 2,2$) > G12 ($65,9 \pm 8,9$) = G1 ($55,6 \pm 4,9$) > G0 ($24,3 \pm 2,3$), and using *H. pylori* as activator: G8 ($99,9 \pm 3,5$) = G6 ($99,2 \pm 2,1$) = G3 ($91,1 \pm 1,7$) > G12 ($62,8 \pm 8,8$) = G1 ($71,4 \pm 8,9$) > G0 ($34,9 \pm 2,2$). In the antimicrobial test, the best results were obtained with G6, G8 and G12, which showed a MIC of 250 μ g/mL. At the highest concentration tested (1000 μ g/mL) G0, G1 and G3 inhibited the bacterial growth in $78,4\% \pm 6,5$; $72,2\% \pm 2,7$ e $86,5\% \pm 1,2$, respectively. **CONCLUSIONS:** The results demonstrated that the hydrophobicity, besides the presence of oxidizable moieties is extremely important for potential drugs designed to develop antioxidant protection and bactericidal effects for treatment of *H. pylori* infections.

Keywords: *H. pylori*, neutrophil, oxidative burst, alkyl gallates, hydrophobicity.
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