

Around the world, more than 50% people are believed to be infected with *Helicobacter pylori*, a Gram-negative bacterium, which selectively colonizes the human gastric epithelium and is associated with stomach and colorectal cancer, as well as gastritis and peptic ulcer etiology. Genetic variability and its capacity to build biofilm are thought to be the reason why this bacterium is resistant to common antibiotics.

As a result, several researchers have been looking out for natural products with possible antibacterial potential as an alternative, for example curcumin. Several studies have suggested that curcumin inhibits *H. pylori* infection via multiple roles.

Objective:

To compare the antibacterial effects of five different formulations of curcumin.

Study Design:

In this study, various parameters were evaluated to determine anti-inflammatory and anti-infective activity and immunostimulating properties of different samples of curcumin, in addition to their role against oxidative damage, *H. pylori*-induced gastritis

Following curcumin samples were used in the study:

Sample #1: Curcumin C3 complex 95% (purchased from Sabinsa Corp., East Windsor, NJ, USA)

Sample #2: Curcumin powder 65% (from Sigma, St. Louis, MO, USA)

Sample #3: Curcumin 94% (from Sigma, St. Louis, MO, USA)

Sample #4: Curcumin 95 (from Jarrow Formulas, Los Angeles, CA, USA), and

Sample #5: Curcumin 95% (from Orcas Naturals, Landing, NJ, USA)

Results and Discussion:

Data suggested all samples except sample #4 showing significantly enhanced serum levels of IL-4, an anti-inflammatory cytokine, with Curcumin C3 Complex® (i.e. sample #1) being more potent

Similarly, sample #1 showed highest inhibition of IFN- γ levels (elevated by *H. pylori* infection) compared to other samples (Fig. 1)

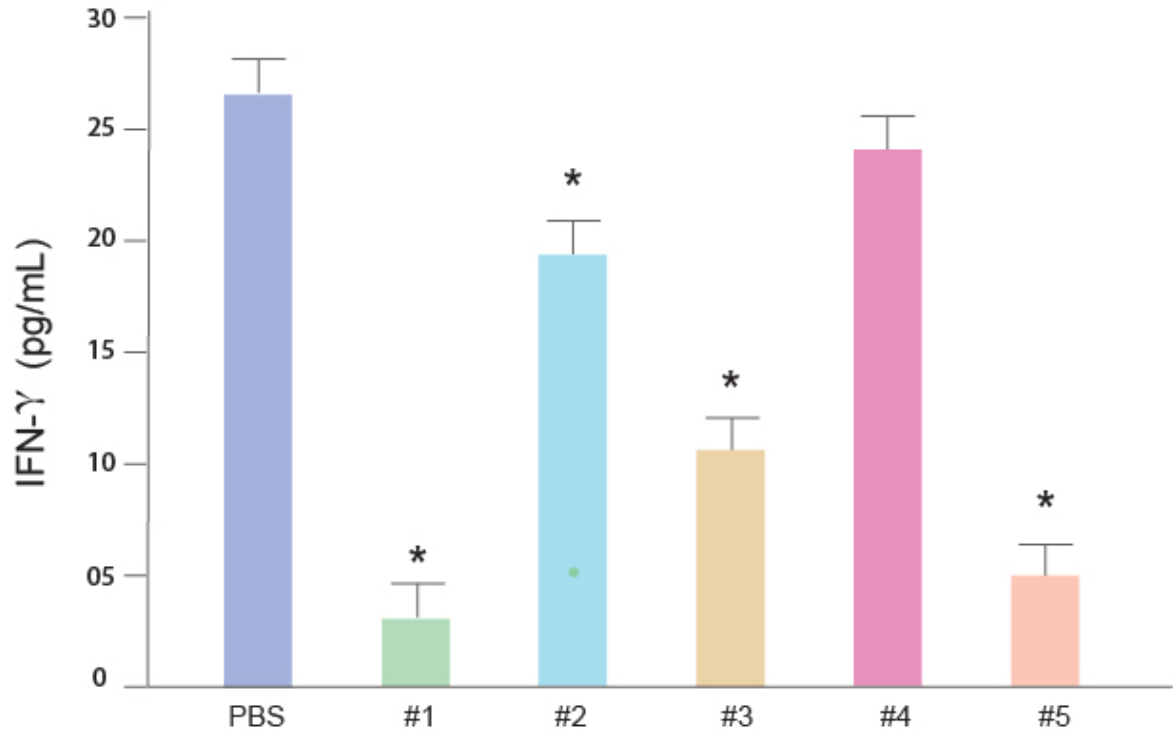


Figure 1. Effects of Curcumin on serum levels of IFN- γ .

Inhibition of somatostatin and gastrin levels was highest with sample #1

Except sample #4, all curcumin samples showed antioxidant efficacy, as suggested by decreased LPO levels, a marker of oxidative membrane damage. Similar results were seen with MPO levels, a pro-inflammatory marker

Curcumin supplementation was able to decrease total amount and growth of *H. pylori* bacteria when stomach of infected animals was evaluated. Sample #1 was found to be more potent

Determination of role of curcumin supplementation on formation of anti-*H. pylori* IgG antibodies revealed that sample #1, #3 and #5 having strongest effects—suggesting strong immunostimulating properties (Fig. 2)

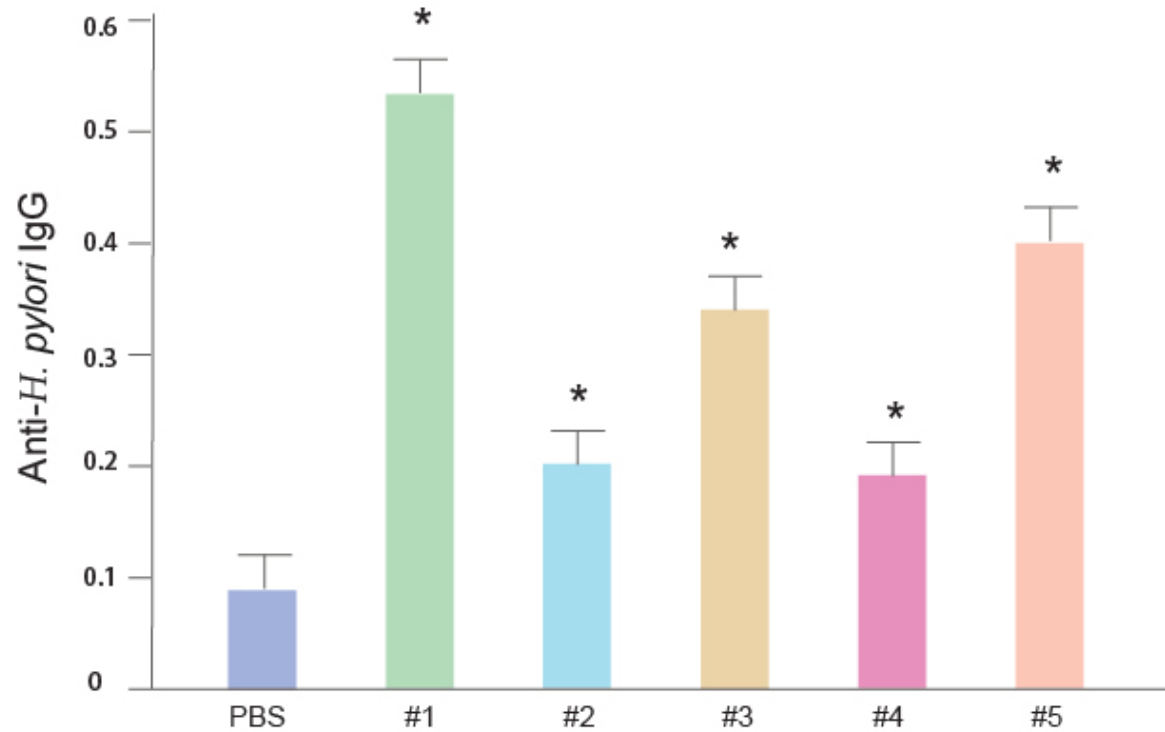


Figure 2. Effects of Curcumin on anti-*H. pylori* IgG formation.

Conclusion:

Overall, curcumin can reduce effects of *H. pylori* infection. However, activity varies between different curcumin samples, despite the clear activity of curcumin in general. Curcumin C3 Complex[®] (sample #1) was found to be the most active of all samples in all of tests conducted.