

Effects of *Lactobacillus rhamnosus* on treating *Helicobacter pylori* Infection

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Helicobacter pylori is a Gram-negative, microaerophilic bacterium found in the stomach. Many studies showed that some stomach diseases, such as gastric ulcers and gastric cancer, may be caused by *H. pylori* infection. The most common treatment in the world of *H. pylori* infection is triple therapy, including two antibiotics -clarithromycin, amoxicillin/ metronidazole combined with proton pump inhibitor (PPI). However, not only the abuse of antibiotics is seriously increasing the antibiotic resistance of *H. pylori* in the recent years, but also the side effects might occur, like diarrhea and allergies, which promote the researchers to hunt for a substitutional and adjuvant therapy for treating infection. *Lactobacillus rhamnosus* is a Gram-positive facultative anaerobic or microaerophilic rod-shaped bacterium presented in the vagina and the gastrointestinal tract. Certain *L. rhamnosus* strains are used as probiotics which has showed their influences on *H. pylori* infection. Thus, in our study, different multiplicity of infection (MOI) of *L. rhamnosus* isolate JB3 was used to treat *H. pylori* infecting in AGS cell line model. Six hrs after infection, interleukin-8 expression (IL-8) and the association ability of *H. pylori* were investigated. Our data showed that JB3 indeed has impact on *H. pylori* infection; however, the effect would not increase along with the relative MOI of JB3. It indicated that the density of JB3 is associated with the effect of treating efficiency. Quorum sensing is one of the well-known systems that regulates the cell density among bacterial species. Hence, we will further work on if quorum sensing plays a role in *L. rhamnosus* treating *H. pylori* infection.

Keywords : *Helicobacter pylori*, *Lactobacillus rhamnosus*, quorum sensing