

**The mechanism of probiotic bacterium on co-treating
Helicobacter pylori infection with gardenia**

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Bacterial enzymes play important roles in biotransformation. It has been reported that the antimetastatic or anticarcinogenic activity of ginsenoside Rb1 could not be showed until it was biotransformed by intestinal bacteria. Crocin, amygdalin, geniposide, puerarin, ginsenoside Rb, hesperidin, poncirin, glycyrrhizin, and baicalin must be biotransformed by human fecal microflora in order to exhibit their cytotoxicity against tumor cells. In our prior study, we proved that it is effective of *L. rhamnosus* strain JB3 on improving the efficiency of gardenia extract in treating *Helicobacter pylori* infection in mice. *L. rhamnosus* strain JB3 with high β -glycosidase could convert non-cytotoxicity geniposide into therapeutic genipin which is 20 times effective than geniposide. In this study, 56.7% of JB3 could survive in 0.1% of bile salt for an hour. However, only 1% of JB3 could live in acid pH 3. The ability of JB3 to adhere to AGS human gastric carcinoma cell line was 10^4 CFU/cell. There was no JB3- induced tumor necrosis factor- α expression in AGS cells and nitric oxide expression in mouse leukaemic monocyte macrophage RAW 264.7 cell line in 3 hours. Based on these biological characters, the probiotic *L. rhamnosus* strain JB3 showed good bile salt tolerance, moderate adherence ability to gastric epithelial cells, and poor acid tolerance. The mechanism of JB3 for improving the efficiency of gardenia extract in treating *H. pylori* infection in mice should be further investigated.

Key words: *Lactobacillus rhamnosus*, probiotic