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Dissertation Title: "Exposure Effects of Aspirin on Growth and Functionality of Lactobacillus rhamnosus and the Development of a Mutant Strain Using Chemical Mutagenesis"

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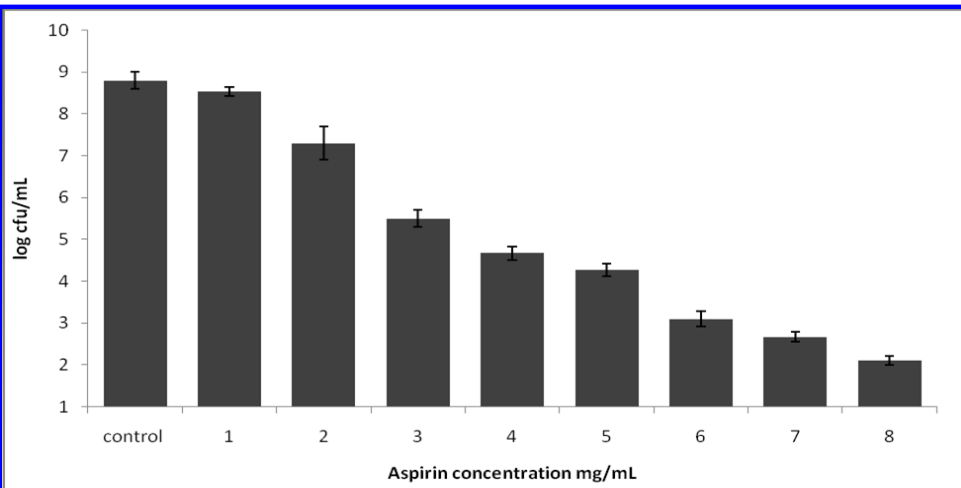


Fig1. Population of *L. rhamnosus* in MRS broth with different concentrations of aspirin after incubation at 37°C for 9h

RESEARCH QUESTIONS / PROBLEMS:

- Could intake of commonly administered medical drugs such as aspirin affects growth and functionality of beneficial (probiotics) gut flora such as *Lactobacillus rhamnosus*?

METHODS:

- Different concentrations of aspirin (0mg/mL -8mg/mL) were vigorously mixed until dissolved in aliquots of 9 mL of deMan Rogosa Sharpe (MRS) broth. Samples were then inoculated with 100 μ L of suspended cells (~7-8 log CFU/mL) and incubated at 37°C. Growth was monitored every 2h for each concentration until turbidity for the control sample attained 0.9 at 610nm. Bacterial populations, β -galactosidase activity and protein expression were determined for each sample.

RESULTS / FINDINGS:

- We examined the survival and growth of *L. rhamnosus* in the presence of different concentrations of aspirin, and we found that aspirin significantly reduced the growth and functionality of *L. rhamnosus* in a dose dependent manner

SIGNIFICANCE / IMPLICATIONS:

- This project provided a better understanding on how common medicine could change the behavior of beneficial micro flora in the human intestinal system in a dosage dependent way.
- This project also helped to promote and implement the concept of healthy food for healthy living especially during drug therapy.