

## Screening of Lactic Acid Bacteria Isolated from Traditional Fermented Products: Potential Probiotic Bacteria with Antimicrobial and Cytotoxic Activities

**Authors :** Genesis Julyus T. Agcaoili, Esperanza C. Cabrera

**Abstract :** Thirty (30) isolates of lactic acid bacteria (LAB) from traditionally-prepared fermented products specifically fermented soy-bean paste, fermented mustard and fermented rice-fish mixture were studied for their in vitro antimicrobial and cytotoxic activities. Seventeen (17) isolates were identified as *Lactobacillus plantarum*, while 13 isolates were identified as *Enterococcus* spp using 16s rDNA sequences. Disc diffusion method was used to determine the antibacterial activity of LAB against *Staphylococcus aureus* (ATCC 25923) and *Escherichia coli* (ATCC 25922), while the modified agar overlay method was used to determine the antifungal activity of LAB isolates on the yeast *Candida albicans*, and the dermatophytes *Microsporum gypseum*, *Trichophyton rubrum* and *Epidermophyton floccosum*. The filter-sterilized LAB supernatants were evaluated for their cytotoxicity to mammalian colon cancer cell lines (HT-29 and HCT116) and normal human dermal fibroblasts (HDFn) using resazurin assay (PrestoBlue™). Colchicine was the positive control. No antimicrobial activity was observed against the bacterial test organisms and the yeast *Candida albicans*. On the other hand, all of the tested LAB strains were fungicidal for all the test dermatophytes. Cytotoxicity index profiles of the supernatants of the 15 randomly picked LABs and negative control (brain heart infusion broth) suggest nontoxicity to the cells when compared to colchicine, whereas all LAB supernatants were found to be cytotoxic to HT-29 and HCT116 colon cancer cell lines. Results provide strong support for the role of the lactic acid bacteria studied in antimicrobial treatment and anticancer therapy.

**Keywords :** antimicrobial, fermented products, fungicidal activity, lactic acid bacteria, probiotics

**Conference Title :** ICPFF 2016 : International Conference on Probiotics and Functional Foods

**Conference Location :** Miami, United States

**Conference Dates :** March 24-25, 2016