

ANTIMICROBIAL ACTIVITY OF POTENTIALLY PROBIOTIC LACTOBACILLUS SPECIES ISOLATED FROM FERMENTED RICE

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Traditional fermented food products such as fermented rice are known to possess probiotic potential. Probiotics are live microorganisms that provide a myriad of health benefits. Despite the associated health benefits, fermented rice has not received due attention in the countries where rice is the staple diet. Many strains of probiotic bacteria have been isolated from different sources, however, only a little work has been carried out on isolation of probiotic strains from fermented rice. Antimicrobial activity is one of the important parameters tested in evaluation of potentially probiotic microorganisms. In this backdrop, the present study was carried out to evaluate the antimicrobial efficacy of potentially probiotic bacteria isolated from fermented rice against seven entero pathogens *Salmonella thyphi*, *Salmonella enteritidis*, *Salmonella thyphimurium*, *Escherichia coli* (ATC 259222), *Shigella sonnei*, *Shigella flexneri* and *Candida spp.* Raw and cooked white and red rice were separately fermented and subsequently they were used to isolate potentially probiotic strains. Evaluation of the antimicrobial activity of isolated *Lactobacillus* strains on indicator microorganisms was carried by agar well diffusion assay with slight modifications. Selected pathogens were grown in MRS broth medium overnight and used to assess the antimicrobial activity. The non-inoculated MRS broth was used as the control. All assays were carried out twice in triplicate. Following incubation at 37°C for 24 h, the diameter of the inhibition zone around the well was measured. All *Lactobacillus* isolates showed antibacterial activity against *S. thyphi*, *S. enteritidis*, *S. thyphimurium*, *E. coli*, *S. sonnei*, *S. flexneri* and anti-candidal activity against *Candida krusei* and *C. tropicalis*. The highest antimicrobial activity was shown against *S. typhi* and *S. flexneri* (diameter of inhibitory zone ranged between 10.3-17.2 mm) while moderate activity was shown against *S. Typhimerium*, *S. enteritidis* and *Shigella sonnei* (4.4-11.3 mm). The least antimicrobial activity was shown against *E. coli* (diameter of inhibitory zone ranged between 1.92 – 2.75 mm). All five isolates showed anti-candidal activity against *C. krusei* and *C. tropicalis* (diameter of inhibitory zone ranged between 4.4-11.3 mm). It can be concluded that all seven isolates showed antimicrobial activity against entero pathogens tested while they showed less activity against most of the *Candida* species tested.