

ABSTRACT

The study was undertaken to assess certain probiotic properties and also to identify the bacteria isolated from *tungrymbai* which is a traditional fermented soyabean (*Glycine max*) product of Meghalaya, India. Samples were collected from four different regions of the state. Isolation was done on MRS media under anaerobic condition and a total of 40 Gram positive catalase negative isolates were selected for studying the probiotic properties. Further screening was done on the basis of survival in simulated gastric condition (acid tolerance) and a total of eight acid tolerant strains were selected for further study. These were then tested for their growth in different concentrations of bile salts on the basis of their survivability (viable cell count and optical density measurement). The strains BAS-TU3, BAS-TU4 and BAS-TU5 were found to be the most bile tolerant strains showing survivability till 15% of bile salt concentration with counts above 7 log CFU. In the susceptibility test against ten numbers of antibiotics, most of the strains were found to be susceptible, while certain degree of resistivity was shown against neomycin and sulphatriad. It was found that the antibacterial activity of the isolates could inhibit *Staphylococcus aureus* and *Escherichia coli* in the range of 10.33±1.53 mm to 20.00±1 mm and 18.00±1 mm to 26.33±1.15 mm respectively. Their gelatinase and haemolysis activity was also investigated and all the eight strains exhibited negative activity. The isolates also assimilated cholesterol up to a certain level. BAS-TU1 has assimilated more cholesterol than the other isolates. Phenotypic identification concluded that they belong to the family of lactic acid bacteria (LAB). The 16S rDNA regions were amplified by PCR, and sequencing of the PCR products was done by chain termination method. Organisms were identified by comparing each consensus sequences to a database library of known 16S rDNA gene sequences in NCBI (GenBank database) with the help of BLAST by matching it with a sequence with the highest maximum identity score from the GenBank database. The isolates were confirmed to be *Enterococcus* strains. The sequences were then submitted to NCBI, Maryland, USA and accession numbers were obtained as KJ690925, KJ690923, KJ690924, KJ857034 and KJ857035 for *Enterococcus faecium* BAS-TU1, *Enterococcus faecium* BAS-TU2, *Enterococcus faecium* BAS-TU3, *Enterococcus lactis* BAS-TU4 and *Enterococcus faecium* BAS-TU5 respectively.

Keywords Fermented Soyabean · *Tungrymbai* · LAB · Probiotic