

## ABSTRACT

Total eighteen strains of lactic acid bacteria were isolated from the pickles samples and they were then screened on the differential media named as De Mans Rogosa and Sharpe agar (MRS) medium which is normally used for the growth of lactic acid bacteria. Morphological and biochemical examination was done preliminary. Twelve out of eighteen strains were identified as *Lactobacillus* spp., four of them were identified as *Streptococcus* spp. by biochemical testing and two of them were unknown. Antibacterial activity of 8 bacteriocin-producing LAB strains was examined by disk/well diffusion method. 3 food borne bacterial pathogens *Escherichia coli*, *Bacillus cereus* and *Staphylococcus aureus* were taken as indicator organisms to check antibacterial activity of LAB strains which was measured as diameter of zone of inhibition around indicator lawn. Maximum antibacterial activity was observed against *Bacillus cereus* and least was observed against *Escherichia coli*. Protein estimation of bacteriocin was done by Bradford method to measure its protein content by comparing with the BSA as standard. Sensitivity of bacteriocin was checked by treating it with proteolytic enzymes (Proteinase-K, trypsin and pepsin) and non proteolytic enzyme (Catalase) and it was examined that there was no antibacterial activity seen when treating with proteolytic enzymes which confirmed its proteinaceous nature but a significant activity was seen when treating with catalase. Heat stability of bacteriocin was also examined by treating it at different temperatures for 30 mins and no activity was seen at 4°C and 121°C. Bacteriocin activity was quite stable between pH 6 and 9 but had a decrease below pH 5. Effect of temperature, incubation time, pH, different carbohydrate source and different NaCl (2, 4 and 6 %) concentrations on isolated LAB strains was examined which revealed that 37°C was optimum temperature for LAB growth, 72 hrs incubation time was seen best for growth of LAB isolates, pH 6 to 9 was observed suitable but pH 6 considered optimum for cultivation of LAB. Among glucose, sucrose, lactose and galactose the best carbohydrate source for growth was seen to be lactose and galactose. Increase of growth and bacteriocin activity was seen at 2 and 4% NaCl concentrations and a slight decrease was observed at 6% NaCl concentration but it also revealed that presence or absence of NaCl had no effect on LAB growth.