

# Mixed fruit wastes as a potential source for Bacteriocin Producing Lactic acid bacterium - *Lactobacillus saniviri* NKSS1 †

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† Presented at International e-Conference on Bioengineering for Health and Environment (ICBHE 2020)

Received: 5.07.2020; Revised: 10.07.2020; Accepted: 12.07.2020; Published: 15.07.2020

**Abstract:** Mixed fruit juices contain microflora on the surface of fruits during the harvest and post-harvest practices. The presence of useful organisms like lactic acid bacteria from the mixed fruit wastes was explored in this study since these microbes use these wastes as a nutrient source for their growth. The lactic acid bacteria isolated using MRS medium was identified as *Lactobacillus saniviri* NKSS1 by 16s rRNA analysis. The bacteriocin produced by *Lactobacillus saniviri* NKSS1 showed inhibitory effect against the food pathogen (*Listeria monocytogenes*) and clinical pathogen (*Acinetobacter baumannii*). Optimization of bacteriocin production from *Lactobacillus saniviri* NKSS1 was achieved at 24 h of incubation, temperature at 35 °C with the initial medium pH of 6.5. The carbon & nitrogen sources like dextrose (3% w/v) and yeast extract (0.75% w/v) enhanced the production of bacteriocin in MRS medium. Antimicrobial activity was reduced in the partially purified bacteriocin when incubated at 95 °C for 2 h but it retained its activity in the pH range of 5.5 to 8.5. Whereas, metals like CuSO<sub>4</sub> and MgSO<sub>4</sub> at (0.5 % w/v) interfered with the antagonistic activity of partially purified bacteriocin. Ionic detergents like SDS and CTAB partially decreased the antimicrobial activity, while other non-ionic detergents inhibited the antimicrobial activity completely. The molecular weight of partially purified bacteriocin from *Lactobacillus saniviri* NKSS1 was found to be 10.9 kDa. It can be concluded that bacteriocin of *L. saniviri* NKSS1 holds a promising potential for extension of shelf-life and improvement of microbiological safety in food industries.

**Keywords:** Mixed fruit juice wastes; bacteriocins; *Lactobacillus saniviri*; non-dairy based probiotics; lactic acid bacteria.

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## Funding

This research received no external funding.

## Acknowledgments

This research has no acknowledgment.

## Conflicts of Interest

The authors declare no conflict of interest.