Chapter 7: Conclusion
7. Conclusion

- Vegetable surface, the unconventional source was successfully exploited for isolation of Lactic acid bacteria.
- Lactic acid bacterial isolates from vegetable origin successfully survived in artificial intestinal conditions proving their suitability as probiotic. Tomato, cauliflower, fenugreek and gherkins were preferred vegetables for LAB colonization.
- The plant probiotic potential is successfully tested and compared with probiotic isolated from human origin. Plant probiotics found at par in comparison to probiotics from human origin.
- Strains showed high antioxidant and antimicrobial abilities. LAB isolated specifically from fenugreek and tomato were superior in their antimicrobial potential. The LAB isolates successfully inhibited the plant and human pathogens indicating its future application in food preservation and as an alternative for antibiotics.
- Isolates were found non genotoxic and protect host from oxidative damage. Some strains showed protection from DNA damage at par than that given by quercetin.
- One of the emerging threat of antibiotic resistance can be prevented by the use of these isolates.
- Lactic acid bacterial metabolites downregulated the expression of genes involved in inflammation and upregulated the genes involved in apoptosis. Gene modulation studies showed significant increase in genes in NF-κB mediated FAS receptor ligand activated BCL2 mediated apoptosis in cultures.
- Selected LAB isolates were used for preparing probiotic formulations found stable at 4°C for around 60 days.
- In line to in vitro test the probiotic formulation found safe on animals. Isolates found safe in acute and sub-acute toxicity study.
- In faecal analysis probiotic formulation successfully reduced the pathogen *E.coli* and *Klebsiella* sp. increasing amount of beneficial flora.
- In addition to safety the probiotic formulation was also successfully reduced chemically induced (TNBS) inflammation compared to standard drug (Prednisolon).
- Overall prepared probiotic formulations using Lactic acid bacterial isolates found safe, non-toxic, protecting host against oxidative damage, pathogenic attack and reducing intestinal inflammatory conditions.