

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

#### A. Conclusion

The conclusions from this study are:

1. Probiotics may also contain microorganisms from the species *Bifidobacterium* (*Bifidobacterium longum*, *Bifidobacterium lactis*, *Bifidobacterium breve*), *Lactococcus Bacillus*, or *Streptococcus thermophiles*. *Lactobacillaceae* and *Bifidobacterium* are Gram-positive rods that produce lactic acid and are found naturally in human and animal digestive systems. Probiotic bacteria have antagonistic action against a variety of gastrointestinal bacterial pathogens, including enteropathogenic strains of *Escherichia coli* (EPEC) and *Staphylococcus aureus*.

Isolated bacteria from Laphet (Myanmar's traditional fermented tea leaves) have probiotic properties because it has resulted in gram positive, can survive in oxgall, can survive in acidity and resists to pathogenic bacteria such as *E.Coli* and *S. Aureus*. It was found that the type of bacterial isolate "Zayan Laphet" sample code ZL1 has a close relationship with *Lactobacillus plantarum subsp. argentoratensis* strain MMB07 (MN700261.1)

2. The genes *IL-6*, *TNF- $\alpha$* , and *IL-1 $\beta$*  are known to play important roles in the inflammatory response. Changes in their expression levels can suggest inflammatory modulation. The statement in this sample reveals that the p values for *IL-6*, *TNF- $\alpha$* , and *IL-1 $\beta$*  are 0.500, 0.68, and 0.08, respectively. These p values indicate that the observed variations in gene expression between the Laphet's extract-treated group and the control group for *IL-6* and *TNF- $\alpha$*  are not statistically significant, however the p value for *IL-1 $\beta$*  is nearing the conventional threshold for statistical significance (0.05). However, it is crucial to note that the lack of a substantial effect on gene expression does not necessarily mean that Laphet's extract has no therapeutic promise in colitis. Other modes of action or pathways may be implicated that were not investigated in this study.

## B. Suggestion

As for suggestions for further research

1. The usage of bacteria in food products is necessary to evaluate their status as a source of probiotics, and the researchers will add observation time to the advantage of ingesting Laphet. More study may be done to look into the underlying processes through which the probiotic strains and Laphet may exert their benefits. This might involve in vitro investigations, animal models, or larger-scale clinical trials. Furthermore, researchers can acquire a more thorough grasp of the possible advantages of consuming Laphet and its interaction with probiotics by introducing bacteria-containing food products into the assessment procedure and prolonging the observation duration. These future directions can help to produce functional foods that support gut health while also providing useful insights into the realm of probiotic research.
2. Laphet is recognized for being high in polyphenols, which may have health advantages. Researchers should concentrate on collecting Laphet samples from various parts of Myanmar and evaluating their extracts on animal models of colitis, a frequent manifestation of IBD. The goal of this study would be to look into the effect of Laphet extract on the gene expression of proinflammatory cytokines including *IL-6*, *TNF- $\alpha$* , and *IL-1 $\beta$* , which are known to have a role in IBD. The outcomes of this study may aid in determining the possible anti-inflammatory qualities of Laphet extract and its influence on IBD. This understanding may be useful in the future development of innovative medicines or strategies for controlling or curing IBD.