

## CHAPTER 8

### RECOMMENDATION AND FUTURE SCOPE OF INVESTIGATION

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**Present research leads to the emergence of following recommendations and future scope of investigation: -**

- † Study quantified the release of only two biogenic metabolites in ambil. Further quantification of other biogenic metabolites released in different fermented beverages can be explored.
- † Depression is spreading like a silent disease; people are reluctant to talk about their mental health, large population of youth is unaware that they are diseased, and choose to suffer in silence rather than seeking professional help. Given the current state of youth's relationship with their mental health, National societies should come up with concerned policies using multidimensional approach. Various foods and specific nutrients having prebiotic properties can be explored for their potential in improving the gut- brain axis.
- † Diagnosis of depression in clinical setting is generally done through syndromal examination (clinical interview and symptom checklist). In current study, depression was tracked through pre-standardized tool, 'Beck's Depression Inventory' as it is a symptom-oriented patient self-report screening, though being quite sensitive the specific percentage of severity of disease can't be accounted. Experts says MRI could be the wave of the future in diagnosis and better understanding of depression (Radiological Society of North America). This opens up avenues for further research.
- † Present study revealed the secrets to mental health wellness lies in our gut. Comparative analysis between prebiotic, buttermilk and synbiotic have reported synbiotic to be the most effective supplement in managing depression and gut microbiota integrity. Further research can be carried out to develop and explore the potential of different synbiotic combinations which can form the part of daily dietary intake thus, combating depression and other mental issues.
- † Future studies assessing the bacterial colonization at strain level using advanced techniques like fluorescence in situ hybridization (FISH), which points specific group of microorganisms using DNA probes to target rRNA can be conducted. This will help obtain a better picture of potential strains of bacteria involved in response to gut- brain axis.
- † In the current study, hypercortisolaemia was observed in depressed patients using the robust blood serum method for cortisol estimation. The results observed were clinically significant in all four supplementation phases but not

statistically significant. The contradiction in result may be due to the site of estimation, as cortisol blood test measures all the cortisol contained in the blood, i.e., both the free/unbound cortisol and the cortisol bound to protein (cortisol binding globulin or CBG) while cortisol saliva test only measures the free cortisol. This can make the cortisol blood test result appear either high or low in the range compared to cortisol measured in saliva. Other more effective biomarkers of mental health can be taken into consideration like serotonin, dopamine and GABA.

- † Nutritional allowance and exercise pattern also have shown major role in maintaining mental stability as they are directly related to the release of happy hormones viz. serotonin and dopamine further investigations can be undertaken in this direction.