

Supatjaree Ruengsomwong 2014: Gastrointestinal Tract Microbiota of Vegetarians and Non-Vegetarians as Health Indicator for Thai. Doctor of Philosophy (Biotechnology), Major Field: Biotechnology, Department of Biotechnology. Thesis Advisor: Associate Professor Sunee Nitisinprasert, D.Sc. 159 pages.

Preliminary study of microbiota in 7 Thai vegetarians and 6 non-vegetarians had been analyzed using polymerase chain reaction denaturing gradient gel electrophoresis (PCR-DGGE). Among the 186 DNA bands detected on polyacrylamide gel, 37 bands were identified mainly belonging to the group of *Bacteroides*, *Prevotella*, *Clostridium* and *Faecalibacterium prausnitzii*. A dendrogram of the PCR-DGGE divided the subjects into 2 clusters (vegetarians and non-vegetarians). Each cluster contained 2 sub-clusters: A1 and A2 for non-vegetarians cluster and B1 and B2 for vegetarians. However, there were still bacterial DNA bands left unidentified. Then after, pyrosequencing was used to reveal these unidentified bacterial DNA found in Thai vegetarians and non-vegetarians. In addition, the number of samples was also increased to 72 healthy Thai subjects. The pyrosequencing results revealed different tendencies for the microbiota in both sample groups. The non-vegetarians tended to have a higher abundance of *Bacteroides*, while the vegetarians had a higher abundance of *Prevotella*. It was also found that the non-vegetarians showed higher amount of Enterobacteriaceae, *Clostridium leptum*, and *F. prausnitzii-Subdoligranulum variabile* like bacteria groups. The amounts of other specific groups were not significantly different between the two sample groups. The difference of enterotypes between both sample groups may be due to their eating styles. *F. prausnitzii* and *Prevotella copri* can be used as the indicators for healthy Thai. Furthermore, the correlations between microbiota and various factors were trivially. The non-vegetarians have a chance to be overweight subjects due to their high BMI values. However, it would be better if Thai people would be aware to their hygienic foods, nutrition balance for good healthy and beneficial microbiota. However, all these results may cooperate with South East Asians microbiota with similar diet.

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Thesis Advisor's signature