

Gut Metabolite Profiling of the Ethnic Groups from Assam, India

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Abstract : Human gut microbes and their metabolites are important for maintaining homeostasis in the gut and are responsible for many metabolic and immune mediated diseases. In the present study, we determined the profiles of the gut metabolites of five different ethnic groups (Bodo, Tai-Phake, Karbi, Tea tribe and Tai-Aiton) of Assam. Fecal metabolite profiling of the 39 individuals belonging to the ethnic groups was carried out using Gas chromatography - Mass spectrometry (GC-MS), and comparison was performed among the tribes for common and unique metabolites produced within their gut. Partial Least Squares Discriminant Analysis (PLS-DA) of the metabolites suggested that the individuals grouped according to their ethnicity. Among the 66 abundant metabolites, 12 metabolites were found to be common among the five ethnic groups. Additionally, ethnicity wise some unique metabolites were also detected. For example, the tea tribe of Assam contained the tea components, Aniline and Benzoate more in their gut in comparison to others. Metabolites of microbial origin were also correlated with the already published metagenomic data of the same ethnic group and functional analysis were carried out based on human metabolome database.

Keywords : ethnicity, gut microbiota, GC-MS, metabolites

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