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CAFÉ SERIES 99

Speaker - Siddabsave GOWDA B.

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Application of lipidomics for food analysis and elucidate the influence of diet on metabolism

Lipids are the essential nutrients for cells involved in numerous functions including energy metabolism and are broadly distributed across multiple tissues. Lipid metabolites are the major biomolecules of human blood, and they are either biosynthesized or obtained from food sources. Currently, more than 48,500 lipid molecules are identified from eight major categories including curated and computationally generated. Many studies have proposed that each structurally different lipid molecule has an independent biological function, and there are potential links between the lipid functions and biological phenotypes. Further, the comprehensive characterization of food lipidome is still sparse. Our research aims to apply advanced untargeted liquid chromatography/mass spectrometry techniques to profile lipids in various functional foods (i.e., herbal tea (*Camellia sinensis*), sorghum (*Sorghum bicolor* (L.) Moench) and rice (*Oryza sativa* subsp. Japonica)) to evaluate their nutritional significance and to uncover novel lipids with potential biological benefits. Further, an imbalance in lipid metabolism is commonly observed in various disease pathologies. Hence, monitoring the altered lipid levels would be an ideal path for finding possible therapeutic targets. I will also introduce our recent findings on how high-fat diet switching can alter the lipid and gut microbial metabolism in the murine model.