

Metabolomics study of the effect of omega-3 and vegetables on patients with type 2 diabetes reveals the metabolic alteration in plasma- phospholipids and ceramides

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The number of people suffering from Type 2 Diabetes (T2DM) has increased dramatically. T2DM is a multifactorial disease accompanied by abnormalities in lipid metabolism. Omega-3 fatty acids and vegetables have been shown to improve the health status in patients with T2DM. Metabolomics have provided opportunity to explore global metabolic status after a given intervention instead of just looking at few metabolic factors. In first stage of our study, 20 subjects with T2DM were randomly assigned into the control- or intervention group. All subjects received information about the potentials of a healthy diet and intervention group, additionally received 25 g of walnut oil and 300 g of vegetables daily during eight weeks. Using a state of art LC-MS/MS metabolomics 485 metabolites were measured quantitatively in plasma of subjects at baseline and at the end of intervention. Multivariate data analysis using MLPLS-DA showed that 25 g oil and 300 g of vegetable causes a significant reduction in prostaglandin F2 α (PGF2 α), phospholipids and ceramides. Both phospholipids and ceramides are increased in T2DM and their reduction in our study could be explained by the reduction of PGF2 α by omega3 fatty acids in walnut oil. The results were investigated in another cohort of T2DP (n=25).

Biography

Dr Ali A. Moazzami has completed his Ph.D at the age of 31 years from Swedish University of Agricultural Sciences (SLU) and postdoctoral studies from Linus Pauling Institute, Oregon State. He is the scientific manager of Swedish national metabolomics platform stationed at SLU. He has published more than 20 pre-reviewed manuscripts.