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¹H NMR based metabolic profiling of serum of Sprague Dawley rats fed with a high saturated fat diet, followed by treatment with an extract of *Morinda citrifolia* leaf

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The prevalence of obesity is increasing worldwide, both in developed and developing nations and a high fat diet is one of the main factors. It is known that obesity also increase the predisposition to other diseases such as diabetes and cardiovascular diseases through the involvement of various metabolic pathways. ¹H NMR based metabolomics was applied to compare the metabolic profile of rats fed a high saturated fat diet (HFD), rats fed with a normal diet (ND) for 12 weeks. After 12 weeks, rats fed the HFD was given a 9 weeks treatment with a rutin rich extract of *Morindacitrifolia* leaf (MLE) and assessed for their serum metabolic profile. Other parameters such as body weight, visceral fat pad and biochemical components (lipids profile, insulin, leptin and adiponectin) were also measured. Based on multivariate data analysis, metabolic profiles of rats on the different diet was distinct, with 3-hydroxybutyrate, acetate/acetone, taurine, 2-hydroxyisobutyrate being the main discriminative metabolites. There was also a significant increase in body weight, plasma triglycerides, insulin and leptin levels in rats fed the HFD. Treatment with MLE (250mg/kg) resulted in an improvement of the metabolic profiles which were closer to the metabolic profiles of rats fed the ND. There was also a general amelioration in the plasma lipid profiles, insulin and leptin levels. This study demonstrate that consumption of a HFD caused metabolic perturbations other than traditionally studied parameters, which can be improved by the supplementation of plant extracts like MLE and ¹H NMR based metabolomics can be an efficient tool in obesity research.

Biography

Najla Gooda Sahib is currently completing her Ph.D. thesis at Universiti Putra Malaysia. She completed her Master's by research in 2010 and has a strong interest in the potential of plants' metabolites as natural anti obesity agents. She has a strong background in food science and has won the "Developing Solutions for Developing Countries" competition organised by the Institute of Food Technology, USA, twice. In 2008, she was awarded a research fellowship by SEARCA for a research attachment at University of British Columbia, Canada. She has several publications and reviews and has given oral presentation in conferences, both nationally and internationally.

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