

## **Metabolite Alteration Associated with Dabai Pulp Oil Supplementation in Hypercholesterolemic Rats**

### **ABSTRACT**

Introduction: Metabolomic analyses have become paramount in unveiling the therapeutic capacities of bioactive agents. Dabai pulp oil (DPO) has emerged as a prospective agent against hypercholesterolemia. This investigation delineates the metabolic imprints of DPO's therapeutic actions using  $^1\text{H}$  NMR-based urinary metabolomic profiling. Methods: Male Sprague-Dawley rats were first exposed to a high-cholesterol regimen to simulate hypercholesterolemia. Following this induction, they were transitioned to a DPO-infused diet. The ensuing metabolic variations were tracked using  $^1\text{H}$  NMR-based urinary metabolomic analysis. Results: The metabolic landscape displayed discernible shifts post-DPO administration, underlining its therapeutic potential. There was a marked decrement in the concentrations of pivotal metabolites such as creatinine, succinate, pyruvate, acetate, TMAO, and choline ( $p < 0.05$ ). Notably, an augmented taurine concentration after DPO administration spotlighted the oil's antioxidative and anti-inflammatory prowess ( $p < 0.05$ ). These observations underscore DPO's proficiency in rectifying metabolic aberrations inherent to hypercholesterolemia, particularly affecting energy transduction and cardiovascular function. Conclusion: This empirical evidence bolsters the notion that DPO harbours potent therapeutic virtues for hypercholesterolemia amelioration. Nevertheless, in-depth explorations are quintessential to decoding its holistic therapeutic pathways, fortifying its role in future targeted interventions.