



Metabolite Profiling of Urine from Healthy Filipino Women Using High Performance Liquid Chromatography

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Abstract: Breast cancer is currently the leading cause of cancer deaths in the Philippines and there are a lot of instances when it is not detected early enough to be treated. Metabolomics, which is the analysis of metabolites by separation and detection in biological systems, can be used to detect breast cancer. In this study, metabolites in the urine of healthy Filipino women were studied using high performance liquid chromatography (HPLC). Conditions were optimized for the collection, storage and chromatographic separation of urine metabolites. The shelf life of the urine samples was prolonged by the addition of toluene which prevented volatile compounds from evaporating and resulted in minimal loss of compounds in the sample. The conditions for the HPLC separation were successfully optimized. It was found that a linear gradient run is more appropriate than an isocratic run for this study. The solvent system used was a linear gradient (0-10 minutes = 5% A: 95% B, 10-50 minutes = 20% A: 80% B, 50-60 minutes 5% A: 95% B) where the solvent A is 0.1% formic acid in acetonitrile and solvent B is 0.1% formic acid in water. Comparison of the different metabolites found in the urine sample was done. A urinary metabolomic profile for healthy Filipino women was established which shows the minimum, maximum and average concentrations of specific metabolites.

Key Words: urine profiling; metabolomics; biomarkers; high performance liquid chromatography