HPLC ANALYSIS OF FLAXSEED (*Linum usitatissimum*), PUMPKIN SEED (*Cucurbita pepo*) and SUNFLOWER SEED EXTRACTS (*Helianthus annuus*)

GOH CHEA SHIEN

B. Sc. (Hons.) FOOD SCIENCE AND NUTRITION
FACULTY OF APPLIED SCIENCES
UCSI UNIVERSITY

2011

ABSTRACT

Nowadays, flaxseed, pumpkin seed and sunflower seed are commonly and commercially available in the market. The aims of the study were to identify potent phenolic components that present in flaxseed, pumpkin seed and sunflower seed extracts by high performance liquid chromatography-photodiode array detector (HPLC-DAD) and also to determine DPPH free radical scavenging activity, total phenolic content (TPC) and total flavonoid content (TFC) of these three seed extracts. Sunflower seed (185.57 mg CE/ g dry weight), flaxseed (165.49 mg CE/ g dry weight) and pumpkin seed (110.04 mg CE/ g dry weight) extracts were detected to contain catechin by HPLC analysis. Based on DPPH assay, sunflower seed possessed the highest antioxidant capacity (95.22 ± 0.92%) and followed by flaxseed (87.63 ± 1.64%) and pumpkin seed (28.21 ± 3.39%). In TPC assay, sunflower seed obtained the highest value (128.63 ± 5.36 mg CE / g dry weight) and followed by flaxseed (22.65 ± 0.97 mg CE/ g dry weight) and pumpkin seed (13.66 ± 0.27 mg CE/g dry weight). According to TFC measurement, sunflower seed had the highest value (34.18 ± 0.80 mg CE/ g dry weight) and followed by flaxseed (2.03 ± 0.13 mg CE/ g dry weight) and pumpkin seed (0.94 ± 0.84 mg/ g dry weight). Moreover, there was significant difference ($p<0.05$) among the seeds extracts in DPPH, TPC and TFC assays. Flaxseed, pumpkin seed and sunflower seed had indicated to attribute significant amount of antioxidants in protecting human health. Future work can be aimed by changing the experimental conditions in sample extraction and storage (temperature, pH, time) as to find out other unknown compounds present in the extracts.