

Phenolic and theobromine contents of commercial dark, milk and white chocolates on the Malaysian market.

ABSTRACT

Chocolate contains a wide range of antioxidants that includes soluble phenolic compounds (phenolic acids, catechin, epicatechin, and proanthocyanidins), insoluble polymeric phenolics and methylxanthines. The objective of this study was to determine phenolic and theobromine contents in dark (DC), milk (MC), and white (WC) chocolates commonly found in the Malaysian marketplace. Total phenolic and flavonoids were determined by means of a spectrometric assay, while catechin, epicatechin and theobromine were quantified using a reverse-phase HPLC method. Dark chocolates exhibited the highest phenolics and flavonoids contents, followed by milk and white chocolates. Catechin and epicatechin were major flavonoids detected in dark chocolates. Theobromine was detected in dark and milk chocolates, but not in white chocolates. A high correlation ($r= 0.93$) between total phenolic and flavonoid contents, indicating that the major phenolic compounds in dark chocolates belong to the flavonoid class. When nutrition and health promotion are of concern, dark chocolates would be recommended over milk and white chocolates owing to their higher contents of antioxidant phenolic compounds.

Keyword: Chocolates; Catechin; Epicatechin; Theobromine.