Analysis of phenolic compounds of dabai (Canarium odontophyllum Miq.) fruits by high-performance liquid chromatography.

ABSTRACT

Dabai (Canarium odontophyllum Miq.) fruit is a popular seasonal indigenous fruit of Sarawak, Malaysia that is always appreciated as an exotic fruit by the local community. The present study was designed to identify and quantify the phenolic compounds of dabai fruits from different divisions of Sarawak. Difference between the purple and red varieties of the fruits was also investigated. Analysis of phenolic compounds was performed by reversed phase high-performance liquid chromatography coupled with diode array detector. Three detection wavelengths (280, 254 and 329 nm) were used to monitor all phenolic compounds (except for anthocyanidins) since they display absorbance maxima at different wavelengths. Characteristic spectra of eluted peaks provide useful information in confirming the identities of peaks. Hydrolysis of phenolic compounds of dabai fruits was insufficient under the milder conditions (30 °C, 2 h) employed thus resulted in unidentified peaks. Two phenolic acids (ellagic and vanillic acids), five flavonoids (catechin, epicatechin, epicatechin gallate, epigallocatechin gallate, apigenin) and ethyl gallate were detected in the fruits. Furthermore, three anthocyanidins (cyanidin, pelargonidin and delphinidin) and four anthocyanins (malvidin-3,5-di-O-glucoside, cyanidin-3-O-glucoside, cyanidin-3-O-rutinoside and peonidin-3-O-glucoside) were detected. All these phenolic compounds were reported in dabai fruits for the first time. The fruit variety affected the anthocyanidins and anthocyanins profile ($p < 0.01$) but had little or no effect on the phenolic acids and flavonoids profile of the fruits. Within the same variety, diversity in environmental conditions had an impact on the quantitative differences of phenolic compounds ($p < 0.05$).

Keyword: Canarium odontophyllum; Phenolic acids; Flavonoids; Anthocyanidins.