ABSTRACT

Thin-Layer Chromatography Pigment Profile and Antioxidant Activity of Rome Beauty Apple (Malus sylvestris Mill) and Its Processed Products from Batu City, Malang

Leny Eka Tyas Wahyuni, Leily Amalia Furkon, Nur Rezky Khairun Nisaa, Putri Anggreini

Correspondence E-mail : lenyekatyas@fkm.unmul.ac.id

Background : Rome Beauty is the most widely cultivated apple variety in Batu City and the main raw material for many commercial processed products. However, there is not much data on changes in the pigment profile and antioxidant activity of this fruit after being processed into local food products.

Objective : To identify pigment profiles and analyze the antioxidant activity of fresh Rome Beauty apples and four of their processed products.

Research Methods/ Implementation Methods : The samples were fresh apples, apple cider, apple dodol, and apple chips, selected purposively in Batu City, plus a laboratory-prepared apple juice. Pigments were identified qualitatively by thin-layer chromatography (TLC) on silica gel GF254 plates with hexane:acetone (70:30) as the mobile phase. Spots were viewed under UV light at 366 nm and their retardation factor (Rf) values were calculated. The antioxidant activity of the crude extracts was measured with the DPPH assay at 517 nm and expressed as IC50. Data were analyzed descriptively.

Results : Each sample produced a single spot. Fresh apple showed a red-orange pigment (Rf 0.10), tentatively identified as catechin. Apple juice showed a yellow-orange spot (Rf 0.40), tentatively identified as lycopene. Dodol (Rf 0.10) and cider (Rf 0.09) showed yellow-orange spots, tentatively identified as xanthophylls. Apple chips showed no spot (Rf 0). In the antioxidant assay, the vitamin C reference had an IC50 of 4.70 ppm. The IC50 values were 586.73 ppm for fresh apple, 512.05 ppm for dodol, and 9.80 ppm for cider. The IC50 values for juice and chips exceeded 2000 ppm.

Conclusion/Lesson Learned : Processing changed the type of pigment detected. Fresh apple and its processed products were classified as very weak antioxidants (IC50 > 200 ppm). Juice and chips had the lowest activity, while cider retained relatively better activity.

Keyword : DPPH, IC50, Rf value, Rome Beauty apple, Thin-Layer Chromatography