

ABSTRAK

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ANALISIS KANDUNGAN POLIFENOL DAN AKTIVITAS ANTIOKSIDAN PADA DAGING DAN KULIT BUAH JERUK BALI MADU (*Citrus maxima* (Burm.) Merr.)

Tugas Akhir, Fakultas Sains dan Teknologi (2018)

(xiv + 108 halaman, 30 gambar, 11 tabel, 8 lampiran)

Penyebab kematian utama di dunia adalah penyakit degeneratif akibat paparan radikal bebas. Polifenol dikenal sebagai sumber antioksidan terbesar dalam pola makan manusia yang banyak ditemukan pada jeruk. Mengingat salah satu jeruk lokal Indonesia (jeruk bali madu) belum banyak diteliti, pada penelitian ini dilakukan analisis kandungan polifenol dan aktivitas antioksidan pada daging dan kulit jeruk bali madu (JBM). Daging dan kulit JBM diekstrak melalui maserasi dengan etanol dan kemudian difraksinasi dengan heksana dan etil asetat. Lalu, tiga fraksi dievaporasi dengan *rotary evaporator* pada 60 °C. Kemudian kandungan polifenol pada tiga fraksi diukur melalui metode Folin-Ciocalteu. Hasil didapat pada fraksi heksana, etil asetat dan etanol kulit ($35,19 \pm 0,79$, $32,73 \pm 4,77$ dan $31,52 \pm 0,16$ mg GAE/g sampel) serta daging ($14,12 \pm 0,49$, $30,26 \pm 2,98$ dan $18,93 \pm 0,52$ mg GAE/g sampel). Aktivitas antioksidan (IC₅₀) tiga fraksi diukur melalui metode DPPH dan diperoleh pada fraksi heksana, etil asetat dan etanol daging (9832,5, 4439,5 dan 4246,69 ppm) serta kulit (1664,61, 2708,98 dan 3318,19 ppm). Korelasi antara kandungan polifenol dan IC₅₀ pada daging *moderate* ($R^2=0,502$) yang diduga karena adanya asam askorbat. Sebaliknya, pada sampel kulit, korelasi kuat ($R^2=0,9982$) menunjukkan aktivitas antioksidan berasal dari polifenol. Analisis identifikasi senyawa polifenol pada daging JBM menggunakan LC-MS/MS menunjukkan adanya 2"-O-Acetyl-3'-O-methylrutin dan narirutin serta pada kulit (GC-MS) terdapat 1,2-Benzenedicarboxylic acid, asam benzoat, 2-Propenoic acid 3-(4-methoxyphenyl)-2-ethylhexyl ester dan auroptene.

Kata kunci: polifenol, antioksidan, jeruk bali madu, korelasi, identifikasi

Referensi 121 (1994-2017).

ABSTRACT

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ANALYSIS OF POLYPHENOL CONTENT AND ANTIOXIDANT ACTIVITY OF HONEY POMELO (*Citrus maxima* (Burm.) Merr.) PULP AND PEEL

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(xiv + 108 pages, 30 figures, 11 tabels, 8 appendixes)

Leading causes of death in the world is degenerative diseases which caused by exposure to free radicals. Polyphenol-rich foods is one of the greatest source of antioxidant compound in human diet that have been found in citrus. Considering one of Indonesian local citrus (honey pomelo) have not yet widely researched, in this research, analysis of polyphenol content and antioxidant activities in honey pomelo pulps and peels will be done. Honey pomelo pulps and peels were extracted in ethanol and fractionated in hexane and ethyl acetate. Then, three fractions were evaporated with rotary evaporator at 60 °C. Polyphenol contents of three fractions were measured by Folin-Ciocalteu method. Results showed that in hexane, ethyl acetate and ethanol extract of peels are $35,19 \pm 0,79$, $32,73 \pm 4,77$ dan $31,52 \pm 0,16$ mg GAE/g extract and pulps are $14,12 \pm 0,49$, $30,26 \pm 2,98$ dan $18,93 \pm 0,52$ mg GAE/g extract. Antioxidant activities (IC_{50}) of three fractions were measured by DPPH method and result showed that in in hexane, ethyl acetate and ethanol extract of pulps are 9832,5, 4439,5 and 4246,69 ppm and peels are 1664,61, 2708,98 and 3318,19 ppm. Correlation between polyphenol content and IC_{50} in pulps is moderate ($R^2=0,6363$) which assumed caused by intervention of ascorbic acid. Otherwise, in peels extract, there is strong correlation between polyphenol content and IC_{50} which showed that antioxidant activity caused by polyphenol compound. Analysis of polyphenol identification of pulps extract used LC-MS/MS showed that pulps extract content 2"-O-Acetyl-3'-O-methylrutin and narirutin and peels extract (GC-MS) content 1,2-Benzenedicarboxylic acid, benzoic acid, 2-Propenoic acid 3-(4-methoxyphenyl)-2-ethylhexyl ester and auraptene.

Keywords: polyphenol, antioxidant, honey pomelo, correlation, identification

References: 121 (1994-2017).