

Phytochemistry and Biological Activity of Extracts of the Red Raspberry *Rubus rosifolius*

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Abstract : Differences in the sensory properties of two subtly distinct varieties of *Rubus rosifolius* lead to the examination of their anthocyanin, essential oil and polyphenol profiles. In both cases, notable differences were identified. Pelargonidin-3-rutinoside (17.2 mg/100 g FW) and Cyanidin-3-glucoside (66.2 mg/100g FW) proved to be the dominant anthocyanins in the red and wine red varieties respectively. Linalool and terpineol were the major constituents of the essential oil from the red variety; however, those of the wine red variety are unidentified. In regard to phenolic compounds, caffeic acid and quercetin were in a higher concentration in the red variety (1.85 and 0.73 mg/100g FW respectively, compared to 1.22 and 0.34 mg/100g FW respectively in the wine red fruits); while ellagic acid and ferulic acid were of a higher concentration in the wine red variety (0.92 and 0.84mg/100g FW respectively, compared to 0.15 and 0.48 mg/100g FW respectively in the red variety). The methanol extract of both fruit varieties showed great antioxidant activity. Analysis of the antimicrobial activity of the fruit extracts against the growth of drug resistant pathogens revealed that they are active against methicillin resistant *S. aureus* (MRSA), rifampicin resistant *S. aureus* (RRSA), wild-type *S. aureus* (WTSA) and vancomycin-resistant *Enterococcus faecium* (VREF). Activity was also reported against several food-borne pathogens including two strains of *E. coli*, *L. monocytogenes* and *Enterobacter aerogenes*. The cytotoxicity of the various extracts was assessed and the essential oil extracts exhibited superior activity. The phenolic composition and biological activity of the fruits indicate that their consumption is beneficial to health and also that their incorporation into functional foods and nutraceuticals should be considered.

Keywords : phytochemicals, antimicrobial, cytotoxic, *Rubus rosifolius*

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