

Title           Antioxidant and antiproliferative activities of red pitaya  
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Citation      Food Chemistry Volume 95, Issue 2, March 2006, Pages 319-327  
Keyword      Phenolics; Red pitaya; Polyphenols; Antioxidant activity; DPPH; ABTS ; B16F10 melanoma cells

### Abstract

The red pitaya, rich in micronutrients, has recently generated a great deal of consumer interest, therefore, this paper was designed to study the total phenolic content, antioxidant activity and antiproliferative activity of red pitaya on melanoma cells and to determine if it is a valuable source of antioxidants and an anticancer agent. The total phenolic contents of flesh ( $42.4 \pm 0.04$  mg of gallic acid equivalents (GAE)/100 g of flesh fresh weight) and peel ( $39.7 \pm 5.39$  mg of GAE/100 g of peel fresh weight) were similar. The flavonoid contents of flesh and peel did not vary much ( $7.21 \pm 0.02$  mg vs.  $8.33 \pm 0.11$  mg of catechin equivalents/100 g of flesh and peel matters). The concentrations of betacyanins expressed as betanin equivalents per 100 g of fresh flesh and peel were  $10.3 \pm 0.22$  and  $13.8 \pm 0.85$  mg, respectively. The antioxidant activity, measured by the DPPH• method at  $EC_{50}$ , was  $22.4 \pm 0.29$  and  $118 \pm 4.12$   $\mu$ mol vitamin C equivalents/g of flesh and peel dried extract; the values of  $EC_{50}$ , determined by the ABTS•<sup>+</sup> approach, were  $28.3 \pm 0.83$  and  $175 \pm 15.7$   $\mu$ mol of trolox equivalents antioxidant capacity (TEAC)/g of flesh and peel dried extract, respectively. The antiproliferative study on B16F10 melanoma cells revealed that the peel ( $EC_{50}$  25.0  $\mu$ g of peel matter) component was a stronger inhibitor of the growth of B16F10 melanoma cancer cells than the flesh. The results indicated that the flesh and peel were both rich in polyphenols and were good sources of antioxidants. The red pitaya peel fulfilled its promise to inhibit the growth of melanoma cells.

**Abbreviations:** GAE, Gallic acid equivalents; TEAC, Trolox equivalent antioxidant capacity; CHD, Coronary heart disease; MTT, 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide