

# nutraberry

## Chemical Compositions, Antioxidant Capacities, and Antiproliferative Activities of Selected Fruit Seed Flours

Department of Nutrition and Food Science, University of Maryland, College Park, Maryland 20742

### Abstract

Seed flours from black raspberry, red raspberry, blueberry, cranberry, pinot noir grape, and chardonnay grape were examined for their total fat content, fatty acid composition, total phenolic content (TPC), total anthocyanin content (TAC), radical scavenging capacities against the peroxy (ORAC) and stable DPPH radicals, chelating capacity against Fe<sup>2+</sup>, and antiproliferative activities using the HT-29 colon cancer cell line. Significant levels of fat were detected in the fruit seed flours and their fatty acid profiles may differ from those of the respective seed oils. Cranberry seed flour had the highest level of R-linolenic acid (30.9 g/100 g fat) and the lowest ratio of n-6/n-3 fatty acids (1.2/1). The ORAC value of the chardonnay seed flour was 1076.4 Trolox equivalents  $\mu$ mol/g flour, and its TPC was 186.3 mg gallic acid equivalents/g flour. These values were 3-12 times higher than the other tested fruit seed flours. Furthermore, the ORAC value was significantly correlated to the TPC under the experimental conditions ( $P < 0.05$ ). These fruit seed flours also differed in their TAC values and Fe<sup>2+</sup>-chelating capacities. In addition, black raspberry, cranberry, and chardonnay grape seed flour extracts were evaluated for their antiproliferative effects using HT-29 colon cancer cells. All three tested seed flour extracts significantly inhibited HT-29 cell proliferation. The data from this study suggest the potential of developing the value-added use of these fruit seed flours as dietary sources of natural antioxidants and antiproliferative agents for optimal human health.

