

Title           Antioxidant and antimutagenic activities of bitter melon (*Momordia charantia* Linn.) extract  
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Keyword       bitter melon; antimutagenic; antioxidant

### **Abstract**

Bitter melon is widely used as an edible vegetable in Asia. It is also best known for its medicinal properties. Few studies have documented anticancer, antidiabetic, and cholesterol lowering effects of bitter melon. However, information on nutritional and nutraceutical values on various parts of bitter melon is limited. The objectives of this study were to determine the proximate composition of flesh, inner tissue (rind), and seed of bitter melon vegetable; extract and quantify phenolics; and evaluate extracts for antioxidant and antimutagenic activities. Moisture, protein, and lipid contents in four varieties of bitter melon (flesh, rind, and seed) were determined using AOAC and AACC methods. Phenolics were extracted using methanol-water system, and the total phenolics were determined using Folin-Clocalteu's method. Antioxidant and antimutagenic activities of the extracts were determined by methyl linoleate model system, and Amest test, respectively. Moisture contents of flesh, rind, and seed ranged from 94.1-94.8, 92.4-93.8, and 70.0-77.0%, respectively. Protein contents of flesh, rind, and seed ranged from 7.63-9.52, 11.89-13.23, and 25.13-31.59% for oven-dried and 6.10-8.61, 10.39-15.71, and 26.03-29.67% for freeze-dried, respectively. Lipid contents of flesh, rind, and seed ranged from 0.53-0.84, 1.03-1.14, and 9.81-12.20% for oven-dried and 0.60-0.79, 0.88-1.86 and 25.68-28.23% for freeze-dried, respectively. Total phenolic contents of flesh, rind, and seed ranged from 13.67-14.49, 13.46-14.80, and 9.73-10.58% and 12.21-13.60, 12.71-13.56, and 9.10-10.51% for oven-dried and freeze-dried, respectively. Antioxidant activities of flesh were 57.1-77.5% and 65.3-68.5% for oven-dried and freeze-dried, respectively. Antimutagenic activities against benzo(a)pyrene (mutagenic compound) ranged from 91.6-100% and 99.3-100% with Salmonella TA 98 for flesh and seed extracts, respectively, and 80.9-81.5% and 78.7-86.2% with Salmonella TA 100, for flesh and seed extracts, respectively. Bitter melon vegetable extract is an excellent source of antioxidant and antimutagen. This can find application in food products, and dietary supplements.