

Evaluation of biochemical and bioactive properties of native and imported pomegranate (*Punica granatum* L.) cultivars found in Bangladesh

ABSTRACT

Pomegranate (*Punica granatum* L.) is one of the oldest known and nutrient rich edible fruits. Peel and Arils of three available cultivars of this fruit in Bangladesh namely, Bangladesh pomegranate, Indian-Mridula and Egypt pomegranate were analyzed to evaluate their biochemical and bioactive properties. The ash, crude fiber, lipid, moisture, pH, titratable acidity, total soluble solid, total sugar as well as bioactive properties included DPPH radical scavenging activity, total phenolic content (TPC), total flavonoid content (TFC), total tannin content (TTC) and vitamin C were assessed in the study. The results of the analysis showed that the ash, pH, titratable acidity, moisture, total sugar ranged from 0.26-0.93%, 3.54-4.01, 1.40-1.87%, 75.43- 81.20%, 9.02-10.12 g DE/100g for aril and 1-2.03%, 3.53-4.12, 1.75-1.88%, 71.69-76.65%, 21.14-29.19 g DE/100g for peel respectively. However, the seed of all cultivars contained significantly ($p < 0.05$) higher amount of lipid and crude fiber than peel especially high lipid content in the seed of Mridula (23.30 g/100g) and peel of Egypt pomegranate (11.76 g/100g) and high crude fiber content in the seed of Bangladesh pomegranate (64.96 g/100g) and peel of Mridula (15.61 g/100g). The peel showed markedly higher DPPH radical scavenging activity, TPC, TFC, TTC and vitamin C than aril. The cultivar behaved as the most influencing factor for variation among the values of individual parameters observed. The findings suggested that pomegranate peel appeared to have more potential as health supplement and rich in natural antioxidants than aril.