Pomegranate sour is a unique product with its exotic taste and viscous texture; it is usually used as a salad dressing in the Mediterranean region. The purpose of this study was to compare traditional and commercial pomegranate sours. In this study, seven traditional and nine commercial pomegranate sour samples were collected and proximate analysis, total phenolic content, ABTS+ (TEAC) and oxygen radical absorbance capacity (ORAC) assays and liquid chromatographic quantification of phenolic compounds were carried out. Commercial and traditional types of pomegranate sours were compared by using Student’s t-test. In addition, the correlations between the component in the sample and the antioxidant activity were also included. Discriminant analysis was used to obtain discriminant function for classification of commercial and traditional samples. Traditional pomegranate sour samples had significantly higher mean TEAC (23.38 mM) and mean ORAC values (47.80 μmol TE/mL) than the commercial samples (P<0.05). The contents of gallic acid, catechin, chlorogenic acid, caffeic acid, syringic acid, p-coumaric acid and resveratrol were significantly higher in traditional pomegranate sour samples than those in commercial samples. Total phenolic content results of samples showed high correlation coefficient with TPC, TEAC, ORAC and some phenolic compounds. Total phenolic content and total antioxidant activity assays would be important for the ease determination not only pomegranate sour but also high antioxidant containing foods such as fruit juices, wines and vinegars. Statistical classification was made between groups, then correlation parameters were determined. Total antioxidant activity assays and phenolic composition indicate significant differences among traditional and commercial pomegranate sours.