Purple maize (Zea mays L.), grown and consumed in Andean Region, is known for its high content of anthocyanins. Several studies have been demonstrated that anthocyanins exhibit biological properties in vitro and in vivo models. Samples of commercial crushed purple maize, purple maize (cob and grain) and commercial juice were analyzed for their contents of flavonoids (HPLC/DAD), total phenolics, monomeric anthocyanins and antioxidant capacity (DPPH and ORAC assays). Among the samples, cob presented the highest total phenolic content (45 ± 1 mg gallic acid eq/g), antioxidant capacity (138 ± 12 µmol trolox eq/g and 837 ± 30 µmol trolox eq/g by DPPH and ORAC methods, respectively) and monomeric anthocyanins (16.2 ± 0.2 mg cyanidin-3-glucoside eq/g) while the lowest values were obtained for the grain. Flavonoids quantified by HPLC/DAD, in cob, expressed as aglycon, were four cyanidin (cy) derivates (16.32 ± 0.98 mg/g), two peonidin derivates (5.54 ± 0.24 mg cy/g), two pelargonidin derivates (7.29 ± 0.38 mg/g) and four quercetin derivates (10.46 ± 0.32 mg/g), and protocatechuic acid (2.09 ± 0.11 mg/g). In commercial purple maize juice, flavonoids and phenolic acids have not been found. The major anthocyanins found in all samples, identified by electron spray ionization mass spectrometry (LC-ESI-MS/MS), were cy-3-glucoside, cy-malonilglycoside and peonidin-3-glucoside, and among the flavonols, quercetin-3-glucoside and quercetin-3-rutinoside. According to these data, purple maize is an excellent source of anthocyanins.