Phenolic compounds may be regarded as one factor contributing to quality of fruits and juice because of high antioxidative effects. Limited information is available concerning the qualitative and quantitative composition of polyphenolic compounds in almonds. The phenolic acids, α-tocopherol and amygdalin contents of the 14 selected almond genotypes were investigated in the study. Catechin was the major phenolic acid ranging from 11.1 to 227.2 µg/g, followed by caffeic acid (2.9-32.1 µg/g), epicatechin (2.0-23.5 µg/g) and gallic acid (2.4-16.1 µg/g). α-Tocopherol contents of genotypes were between 143.97 and 462.78 µg/g, and significant differences were observed amongst genotypes. The highest amygdalin content was detected in slightly bitter almond genotype Isp-9 (22.53 mg/g). Amygdalin contents of sweet almond genotypes ranged from 1.53 to 11.56 mg/g. The results showed large variability amongst genotypes in phenolic acids, α-tocopherol and amygdalin contents.