Amygdalin is a bioactive compound used in the traditional treatment of some diseases, and it is toxic to humans and animals when it is consumed excessively. It is abundantly found in the kernels of almond cultivars, especially in bitter ones. In the study, the amygdalin contents of the kernels of 15 commercial almond cultivars (*Prunus amygdalus* L.) were determined by high-performance liquid chromatography (HPLC) for 2 consecutive years. The seeds of the cultivars were obtained from the Fruit Research Institute, Isparta, Turkey. Results indicated that amygdalin concentrations of the cultivars were significantly different (*P* < 0.05) for 2 years. The levels amygdalin ranged from 0.443 g·kg⁻¹ to 1.866 g·kg⁻¹ in 2008 and from 0.250 g·kg⁻¹ to 2.200 g·kg⁻¹ in 2009. As the average of 2 years, the highest concentration of amygdalin was determined in ‘Supernova’ (1.458 g·kg⁻¹) and the lowest concentration was determined in ‘Masbovera’ (0.370 g·kg⁻¹).