Blueberry (Vaccinium spp.) is a fruit tree cultivated in Europe, in the United States and in Canada, being recently introduced in the South of Brazil. Its fruits are commonly known as longevity fruit, due to their beneficial characteristics to health. This work was carried out aiming to evaluate the physicochemical characteristics of the fruits from three cultivars of organic blueberry (“Clímax”, “Florida” and “Bluegem”), harvested in Caxias do Sul, RS, in 2010 harvest. For the physicochemical characterization of the different cultivars were determined fruit mass (g), longitudinal and transversal diameters (cm), total soluble solids (TSS) content in ºBrix, pH, total titratable acidity (TTA) in g of citric acid 100 mL⁻¹ and ratio (TSS/TTA) were determined. The results for physical characteristics, fruit mass, longitudinal and transversal diameters did not differ among the cultivars evaluated. The variable TSS showed differences among the three cultivars, out of which, cultivar “Bluegem” was superior to the others, when it comes to TSS content in the fruits. Cultivar “Florida” showed the lowest values of pH and ratio and the highest TTA, differing statistically from the other cultivars. Since the determination of pH, TTA and TSS contents contributes to better flavor and a better appreciation of the fruits, it is possible to conclude that cultivars “Clímax” and “Bluegem” are better qualified both for fresh consumption as for industrialization. However, there is only a need for a lower addition of sugar during the production of juice and jellies, when compared to cultivar “Florida”, therefore being cheaper to produce.