The lighter colored honey is preferred worldwide and has greater commercial value. The color of honey varies from very pale yellow to dark brown. Beside flavor and aroma, the color is typical of floral origin and is related to the mineral content and electrical conductivity (EC). The objective was to study the relationship between chromatic components, pH and EC of honey, applying multivariate techniques: Principal Component Analysis (PCA) and Hierarchical Cluster Analysis (HCA). Directly from Ortigueira-Pr and neighborhoods beekeepers, were collected 39 (monofloral and multifloral) honey samples of Apis mellifera bees in 2010-2011. The samples were evaluated for pH, EC, absorbance at 635 nm (C635) and chromatic components (CIE L*a*b* C* and H). EC correlated with all variables related to color and pH. The honey of higher EC values were significantly darker and less acid. The first two PCA axes have 55, 61, and 23,44% respectively of the total variance existing. The horizontal separation of the samples was due to C635, pH, EC and chromatic components L* a* C* and H, while the vertical separation occurred mainly due to b*. HCA revealed the existence of three groups of samples that were separated mainly by its floral origin. The lighter colored group was formed basically by C. floribundis honey, while in the other groups consisted of honey multifloral. Variables studied and statistical techniques employed were efficient for grouping the honey from different blossoms and can be useful to identify the botanical origin of honey.