The fact that there is no any rule in selection of a given diversity index concerning the measures of biodiversity means that utilization only one of these to define the diversity of living communities is insufficient. Different diversity indices have been used by many researchers. Even though diversity indices have different facets, they are also highly correlative with each other. That allows us to reproduce a component diversity index from the all diversity indices we have used. The present study was carried out to get a component diversity index for the Kuyucak mountain of the Mediterranean region, Turkey. In the study, the woody vegetation data obtained from 800 sample plots were used. The diversity indices (Species richness (S) Shannon entropy (H), Simpson 1–dominance (1−?), Brillouin index (HB), reciprocal of Berker-Parker index (1/d), Menhinick (DMN) index, Margalef (DMG) index and Fisher’ alpha (?F) were measured at each sample plot. The results of Pearson correlation analysis among the diversity indices showed that all indices are significantly correlated with each other at the level of 0.01. H has the strongest correlations with majority of the diversity indices whereas 1/d has generally weaker correlations with the indices compared to the other indices' inter-correlations.