terms of species, function, and structure among living things. This study was performed to investigate the relationships between environmental factors and alpha diversity (α) and woody plant species in the region of the Dedegöl Mountain (Yenişarbademli). The diversity components were calculated by the data obtained from 103 sample area of the field inventory method. During the field studies, coverage classes of woody plant species and environmental factors were recorded in each sample plot. The climate variables of sample plots are obtained from the worldclim.org. Then, the variability coefficients of some of the variables recorded in the sample plots were calculated and new variables were determined by using a digital elevation model (DEM). Principle component analysis (PCA) was applied to determine which of the indices used to calculate alpha species diversity could be used. Spearman correlation analysis and multiple regression analysis (MLR) were applied to determine the relationship between alpha species diversity and environmental factors. Interspecific Correlation Analysis was applied to determine the indicator species. In the study, regression analysis (RA), detrended correspondence analysis (DCA) and canonical compliance analysis (CCA) were applied to the vegetation matrix to determine the gradual distribution of sample plots over the ordination axes. The Shannon-Wiener index has been determined to have the highest coefficient as the PCA result. Spearman correlation analysis revealed that the alpha species variety had positive correlations with BIO1, BIO2, BIO4, BIO10, BIO11, ENLEM, YUZTAS, while the alpha species diversity had negative correlations with BIO12 and YKSLT. As a result of MLR, elevation variability was identified as the most important variable. ABICIL, CISLAU, EUPSPP, JUNEXC, JUNOXY, LAUNOB, POPTRE, ROSCAN, SAMEBU, THYSAM were identified as the most important indicator species. The combination of the most suitable environmental variables for RA, DCA, CCA result was obtained with surface roughness, BIO4 (temperature seasonality) and BIO12 (annual precipitation) variables. Shannon-Wiener index was found to be the most effective index, and surface roughness and elevation variables are the most important explanatory variables for alpha species diversity in the study area. With the help of the information obtained in this study, it is possible to plan the beta and gamma diversity studies in the following stages. Potential distribution models and mapping of species diversity components can be achieved