Introduction: Many studies have been conducted about Brutian pine which is a primary forest tree species in Turkey. However, the studies on the relationships between alpha diversity of species and ecological site factors are very few. In recent years, biological diversity has become one of the most important issues in ecological research. From this point of view, in this study, it is aimed to reveal the relationship between the plant species diversity and environmental factors in Brutian pine forests of Gölhisar district.

Material and Methods: The study was carried out in natural Brutian pine forests and the data were obtained from 42 plots in 20x20 m dimensions. Coverage values (%) of plant species in sampling areas were converted to Braun-Banquet method. These values were then subjected to a second transformation process as suggested by Fontaine et al., (2007). In the study, altitude, slope, radiation index, height index, aspect favourable index and climate variables are included as environmental factors. After the alpha plant species diversity according to the Shannon index was calculated by the PAST software and site factors-diversity relations were determined by Pearson Correlation Analysis in SPSS package program and Principal Component Analysis in PAST software.

Results: In this study, 100 different plant species were identified in 42 sampling sites. The Shannon diversity index values calculated in the sampling areas range from 1,466 to 2,834. Pearson correlation analysis showed that there was a positive correlation between the alpha species diversity and the limestone bedrock. As a result of Principal Component Analysis; alpha species diversity is negatively associated with mean temperature and sandstone in a positive relationship with the slope and limestone bedrock.

Discussion: Such as many other countries, Turkey has become a party by signing the biodiversity convention. Scientific studies are needed to fulfil the requirements of this convention. Thus, in recent years, many valuable studies have been carried out on biodiversity. However, there are few studies that can reveal the relationship between alpha species diversity and environment characteristics. In this respect, this study has been carried out in which important information can be provided for the biodiversity concept. On the other hand, Brutian pine is an important forest tree species which has the widest distribution in Anatolia. This situation increases the widespread effect of the results obtained in the study. It is also aimed that this information will be an important reference source for future researches about biological diversity.