

## Effects of aspect on some soil properties in oak and beech-hornbeam forest in Western Black Sea Region of Turkey

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**Abstract:** The aim of this study is to determine effects of aspect on plant community structure and soil chemical and physical properties in an oak and beech-hornbeam mixed stands in Duzce University Campus Forest located in Western Black Sea Region of Turkey. Vegetation period is approximately 6 months and mean annual precipitation is about 800 mm in this temperate broadleaf forest ecosystem. The overstorey of the northern aspect is primarily dominated with a closed canopy of eastern beech (*Fagus orientalis*)-hornbeam (*Carpinus betulus*) mixed forest and the southern aspect is primarily a closed canopy of Oak (*Quercus spp.*) forest. 2 aspects were used for soil sampling. Soil samples collected from the topsoil 0-20 cm depth) from 9 sampling area on each aspect and they were used to determine the soil bulk density, texture, electrical conductivity (EC), cation exchange capacity (CEC), calcium carbonate (CaCO<sub>3</sub>) and inorganic carbon (IOC) content. Soil texture was in general loam where it ranged from clay loam to sandy loam in this area. Although the mean sand, clay, silt, pH, CEC, CaCO<sub>3</sub> and IOC contents were statistically different on south aspects then north aspect, EC did not differ significantly between the aspects. The percentage of sand and clay, CEC, contents of CaCO<sub>3</sub> and IOC were 8.4%, 29.4%, 49.8%, 28.7% and 28.7% more on south aspect then those on north aspect, respectively. On the other hand percentage of silt and pH were 11.13% and 5% more on north aspect then south aspect, respectively. According the results of this study it is seen that aspect has varied most of the soil properties and also the plant composition. Descriptive ecological studies' results are very important for the future management decisions so the data obtained from this study can be used for similar deciduous forest ecosystems in this region. Additionally, data obtained from these ecosystems may be stored for long-term monitoring and evaluation.

**Keywords:** Soil properties, Oak, Beech, Hornbeam, Western Black Sea Region