OP241

Soil carbon under Maritime Pine (*Pinus pinaster* Aiton) plantations onSand Dune Restoration Sites at Terkos (Durusu) – Istanbul

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Aim of the study: Sand dunes occupy a large proportion of the TerkosLake, Istanbul-Turkey, and its movement by wind threatened the important municipal water resource. It's also a significant location because of being the first afforestation and dune restoration study in Turkey concerning to stabilize coastal dune movements. Currently, 1674 hectares of maritime pine plantation area exists on Terkos coastal dune site. Introduced maritime pine trees have stabilizing performance and growth on sandy material which has poor water and nutrient capacity, however, critically important aim of this research on soil carbon to improve understanding soil carbon sequestration on coastal sand dunes.

Material and Methods: Sampling design was mainly set on the development stages of stands. 15 sample plots from each development stages according to (DBH) tree diameters of 0-8 cm; 9-20 cm; 21-35 cm and <36 cm with abbreviations a, b, c and cd respectively. Thus a total of 60 sample plots were selected. Also 20 soil pits were dug from open coastal dunes without any planted tree cover. Forest floor samples were collected from 25x25 cm area with five replications in each plot. Samples were separated to two layers as litter+fermentation and humus. For soil sample collection, one soil pit was dug in each sample plot. It is observed that there is no pedogenic horizon development in the field except for an Ah horizon. Therefore, soil samples were taken from constant depths (0-5 cm, 5-15 cm, 15-30 cm, 30-50 cm, 50-70 cm and 70-100 cm). Forest floor and soil samples were analyzed to determine carbon concentrations.

Results: Sand dune movement were mostly controlled because of the effects of both forest floor and planted trees. Thick forest floor layers under stands likely shows slow decomposition rate, therefore, forest floor accumulation increase with the stand development stages. Carbon concentrations did not show a clear tendency with stand development in both litter+fermentation and humus layers of forest floor. Soil organic carbon concentrations has a decreasing tendency with soil depth, and the first soil depth layer (0-5 cm) has more carbon concentration than lower depths in all plots.

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