



Carbon storage potential in forest afforestations by Black Saxual (*Haloxylon aphyllum*) in a road edge (Case study: Garmsar - Eyvanakey Highway)

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Abstract

In this study, the amount of carbon storage in a *Haloxylon aphyllum* stands in road edge were measured; Garmsar - Eyvanakey highway is a one of the most important and high traffic roads in Iran that adjacent to the Capital, and it's caused air pollutions. We collected 11 plots 500 m² from the road edges (60 meters on each side from axe) for measurements of vegetation and soil parameters. The results showed that the cumulative carbon sequestration in forest soil profiles in *H. aphyllum* afforested is equal to 47.72 tons per hectare. The Duncan test results showed no significant difference between the mean layer of 10 to 30 and 30 to 90 cm; However, between the two mentioned layers with surface soil (0 -10 cm) have significant differences ($p < 0.05$). The carbon percentage in the aerial organs included leaves, and stem in compare with below ground biomass have been significant differences. The total amounts of carbon storage in the both of aerial and below ground organs are equal 582.2 Kg per hectare, and also the cumulative carbon sequestrations in soil and plant parts of this afforestations are equals 53.54 tons per hectare. We should consider the potentials of the width of highways, and network roads for carbon sequestrations. The advantages of the establishments of vegetation cover are: decrease and controlled the erosion, make up the ecologically corridors, general landscape, decrease of noise pollution, as well as make up the new microclimate.

Keywords: Carbon storage, Garmsar, *Haloxylon aphyllum*, Road edge.

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