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Restoration and sequestration of carbon and nitrogen in degraded northern coastal area in Nile Delta, Egypt, for climate change mitigation

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Most of coastal area in Nile Delta, Egypt, salt-affected soils, thus C and N inputs are low as a result of declining vegetation growth and low net primary production. Therefore this study aimed to investigate C and N pools in two similar sites in this area, site 1 is cultivated (20 years ago) and site 2 is uncultivated; examine the impact of cultivation on restoring C and N pools in this area for global climate change mitigation and calculate sequestration rate of C and N. C and N pools increased in surface soil from 2.99 and 0.43 t/ha in site 1 to 19.26 and 1.66 t/ha in site 2 as salinity was reduced and net primary production was increased due to leaching and reclamation. Particulate (associated with sand) and nonparticulate (associated with clay+silt) organic C or N was significantly higher in site 2. In addition nonparticulate organic C or N was lower than particulate part indicating and supporting the strong relationship between organic matter and clay. The sequestration rate was 0.0015 t/ha and 0.0615 t/ha in C and N pools respectively. Although the cultivation is leading to loss of organic matter in some areas; C and N in this coastal areas are restored and stored. This is because of the management practices which associated to cultivation.

Biography

Heba Yahia Elbasiouny has completed her PhD from Kafr El Shiekh University, Egypt. Through PhD, she visited Ohio State University, USA as a visiting scholar for two years. She is serving as a lecturer at environmental and biological science department at Al Azher University, Egypt. She is interested in climate change and environmental problems, change and management. She has published some paper in conferences and reputed journals. The last published paper is "Spatial variation of soil carbon and nitrogen pools by using ordinary Kriging method in an area of north Nile Delta, Egypt".

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