



The effects of land-use/cover change on some soil physical and chemical properties in central Iran

Eftekhar Baranian Kabir¹, Hossein Bashari¹, Mehdi Bassiri¹, Mohammad Reza Mosaddeghi²

¹Department of Natural Resources, Isfahan University of Technology, Isfahan 84156-83111, Iran

²Department of Soil Science, College of Agriculture, Isfahan University of Technology, 84156-83111, Isfahan, Iran

Abstract:

Severe natural resources utilizations pose many hazards in developing countries. Many stakeholders convert rangelands to agricultural fields to achieve more immediate income. This study aimed to investigate selected soil quality indicators in various land uses in a semi-arid region in central Iran. Soil samples were randomly collected from surface (0 to 5 cm) and sub-surface (5 to 25 cm) soil layers in good and poor rangelands, dry farmland and abandoned land. The structural stability indices including mean weight diameter (MWD), geometric mean diameter (GMD) and median diameter (D50) of water-stable aggregates in the collected soil samples were measured. Results showed that the trend of changes in soil organic matter was similar to soil aggregate stability in different land uses in both soil layers. The studied properties of good rangelands were significantly greater than other land uses ($P < 0.05$). Moreover that percent of macro-aggregates (> 0.25 mm) of the surface and sub-surface layers in rangelands were significantly higher than dry farmlands and abandoned lands ($P < 0.05$). This finding indicates the importance of maintaining and conserving native rangeland (specially their surface soil) to prevent organic matter loss, structure deterioration and soil erosion.

Keywords: Aggregate stability, organic matter, holistic management, land-use/cover change.

Biography:

Eftekhar Baranian Kabir is a researcher in the Department of Natural Resources at Isfahan University of Technology. She got her PhD at Isfahan University of Technology in 2018 under supervision of Hossein Bashari and Mehdi Bassiri. She holds a BSc in natural resources



engineering and Master of Philosophy degree in Rangeland Management, Isfahan University of Technology. She has also been the best student during all her academic education. She published 2 ISI essays and other studies in Persian language. Eftekhar grew up in Isfahan, Iran and is passionate about ecological and economic effects of land-use/cover change.

Publication of speakers:

1. Ayoubi S, Emami N, Ghaffari N, Honarjoo N, Sahrawat KL. 2014. Pasture degradation effects on soil quality indicators at different hillslope positions in a semi-arid region of western Iran. *Environ Earth Sci.* 71:375-381.
2. Ayoubi S, Karchegani PM, Mosaddeghi MR, Honarjoo N. 2012. Soil aggregation and organic carbon as affected by topography and land use change in western Iran. *Soil Till Res.* 121:18-26.
3. Cerdà A. 1998. Soil aggregate stability under different Mediterranean vegetation types. *Catena.* 32:73-86.
4. Dexter A, Richard G, Arrouays D, Czyż E, Jolivet C, Duval O. 2008. Complexed organic matter controls soil physical properties. *Geoderma.* 144:620-627

Emerging Trends in Plant Science and Natural Products Research, March 19-20, 2020; London, UK

Citation: Eftekhar Baranian Kabir; The effects of land-use/cover change on some soil physical and chemical properties in central Iran; Natural Products 2020; March 19-20, 2020; London, UK