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9th INTERNATIONAL CONFERENCE ON GEOMORPHOLOGY

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6 -11 November 2017 | Vigyan Bhawan, New Delhi, India

Organised by
Indian Institute of Geomorphologists (IGI)

ABSTRACTS VOLUME

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Participation Certificate

This is to certify that

ADEL SEPEHR

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BIOLOGICAL SOIL CRUSTS MICROMORPHOLOGY ALONG AN ARID ALLUVIAL FAN IN NORTHEASTERN IRAN

Adel Sepehr[1]*

[1]*Dept. of Desert and Arid Zone Management, Ferdowsi University of Mashhad, Mashhad, Khorasan-razavi, Iran*

***(*Corresponding Author:** adelsepehr@um.ac.ir)*

The dominant living forms in drylands involves syntax structure of biocrusts distributed on the arid soils. In Iran with approximately 80% arid and semi-arid environments, biological soil crusts (BSC) play an effective role on dust capturing, soil hydrologic balancing, soil aggregate stability, modifying soil properties, and pedogenesis. This research presents the succession of biocrusts along an arid alluvial fan located in northeastern of Iran. The studied area surfaces are ranged in age from Holocene to Pleistocene. The samples were collected in June 2016 from apex point to base part of the alluvial fan, which included lichens, cyanobacteria, mosses, and algae. Macroscopic features were examined for samples regarding the pedogenic structure and soil aggregation. The micromorphological examination was applied under a field emission scanning electron microscope (FESEM), and an analysis of XRD was used for extracting mineral compositions. The results indicated a significant relationship between soil-sediments development and biocrust succession as we found the cyanobacteria in base part with fewer amounts of soil moisture and debris and also with increasing slope and relief towards apex point, lichen species were the dominant cover. Comparison results of XRD between surfaces with BSC cover and devoid of biocrusts showed that biocrusts surfaces trapped dust and it indicated the stabilized role of BSC. There was a conceptual result that BSC succession can be developed regarding the geological age of surface as Holocene surfaces show mainly cyanobacteria community and older Quaternary layers covered by lichen and mosses species. This research shows a deep relationship between geomorphic structure and biocrust ecology.

***Keywords:** Biological Soil Crust (BSC), alluvial fan, micromorphology, cyanobacteria, Iran*