

Ecologically distinct and functionally unique thermal springs in Jazan, Saudia Arabia

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Abstract

Seasonal biodiversity investigation of four different hot springs named Ardah, Kobah, Qowah and Bin-Malik in Jazan, Saudia Arabia were studied during 2015. Jazan springs are ecologically diverse that vary from fully protected to brutally flooded springs. Ardah hot spring (17°02'06"N, 42°59'22"E) has 5-sources that are 15-meters apart but ecologically diverse. Seasonal analysis of temperature, pH and TDS values show similar distinctions pattern in all 5-sources. Kobah hot spring (16°45'51"N, 43°07'46"E) is found in wadi bed that was greatly flooded during this study, species repossession and settlement after flood were feeble. Qowah hot spring (16°47'46"N, 43°12'01"E) is located in wadi Damad east of Kobah spring. This spring was eroded by massive flood that left no algae. Surprisingly, Qowah was rapidly occupied by 78 taxa (38 cyanobacteria species, 23 Bacillariophytaea species, and 17 Chlorophytaea species) after 4-weeks. The substantial recovery and establishment of heavy cyanobacteria mats in short period is different from Kobah. Indeed, physical, chemical and climatic factors analyses help explain this differences between these two thermal springs. The presence of green algal species in Qowah are fascinating, temperature gradient may help them colonize in Qowah. Bin-Malik spring located in mountain region (17°16'11"N, 43°13'09"E) that is fully fenced by the government. Surprisingly, limited biodiversity was recorded Bin-Malik spring compared to flooded sites. Indeed, detailed comparison of the physical, chemical, and biodiversity of the four springs help extract unique ecological data that might generate rational decisions for sustainable development of these valuable resources.

Biography

Hatem E M Abdelwahab has completed his PhD from Arizona State University and Postdoctoral studies from School of Life Sciences and the Biodesgin Institute at Arizona State University, Departement of Biological and Ecological Engineering at Oregon State University. He served in Seuz Canal Univerisity, King Abdulaziz University and Jeddah University as an Assistant Professor. He has published more than 7 papers in reputed journals and 25 abstract and posters in international conferences and meetings.

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