Accepted Manuscript

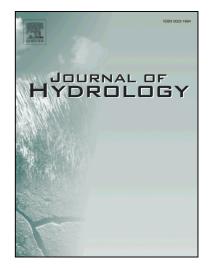
Research papers

The role of non-rainfall water on physiological activation in desert biological soil crusts

Jiaoli Zheng, Chengrong Peng, Hua Li, Shuangshuang Li, Shun Huang, Yao Hu, Jinli Zhang, Dunhai Li

PII:S0022-1694(17)30821-1DOI:https://doi.org/10.1016/j.jhydrol.2017.12.003Reference:HYDROL 22414To appear in:Journal of Hydrology

Received Date:2 June 2017Revised Date:1 December 2017Accepted Date:2 December 2017



Please cite this article as: Zheng, J., Peng, C., Li, H., Li, S., Huang, S., Hu, Y., Zhang, J., Li, D., The role of non-rainfall water on physiological activation in desert biological soil crusts, *Journal of Hydrology* (2017), doi: https://doi.org/10.1016/j.jhydrol.2017.12.003

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

The role of non-rainfall water on physiological activation in

desert biological soil crusts

Jiaoli Zheng^{1, 2}, Chengrong Peng¹, Hua Li¹, Shuangshuang Li³, Shun Huang^{1,2}, Yao

Hu^{1,2}, Jinli Zhang^{1,2}, Dunhai Li^{1*}

¹Key Laboratory of Algal Biology, Institute of Hydrobiology, Chinese Academy of

Sciences, Wuhan 430072, China

² University of Chinese Academy of Sciences, Beijing 100049, China

³College of Energy and Environmental Engineering, Hebei University of Engineering, Handan 056038, China

Abstract

Non-rainfall water (NRW, e.g. fog and dew), in addition to rainfall and snowfall, are considered important water inputs to drylands. At the same time, biological soil crusts (BSCs) are important components of drylands. However, little information is available regarding the effect of NRW inputs on BSC activation. In this study, the effects of NRW on physiological activation in three BSC successional stages, including the cyanobacteria crust stage (Crust-C), moss colonization stage (Crust-CM), and moss crust stage (Crust-M), were studied *in situ*. Results suggest NRW inputs hydrated and activated physiological activity (F_v/F_m , carbon exchange, and nitrogen fixation) in BSCs but led to a negative carbon balance and low rates of nitrogen fixation in BSCs. One effective NRW event could hydrate BSCs for 7 hours.

^{*}Corresponding author. Tel./Fax: +86 27 68780715, E-mail: lidh@ihb.ac.cn. Address: No. 7 South Donghu Road, Wuchang District, Wuhan 430072, Hubei Province, China

Download English Version:

https://daneshyari.com/en/article/8895181

Download Persian Version:

https://daneshyari.com/article/8895181

Daneshyari.com