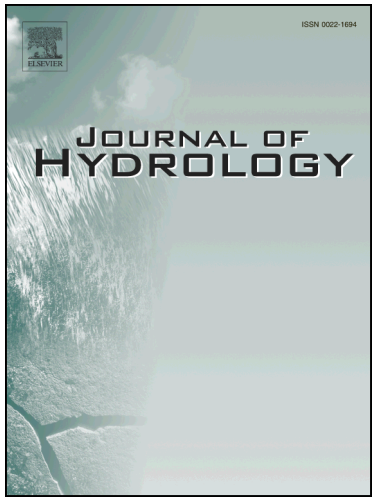

Research papers

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

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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.

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