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# THE COMPONENTS OF DESICCATION TOLERANCE MECHANISMS IN BRYOPHYTES: THE OLD STORY HAS BEEN UPDATED

A kiszáradás-tolerancia mechanizmusok komponensei mohafajokban. A régi történet aktualitásai

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Bryophytes are not primitive precursors of vascular plants, but the diverse and highly evolved representatives of an alternative adaptation strategy, some fascinating physiology of their own. Bryophytes and vascular plants operate at different scales in relation to gravity, surface tension, laminar boundary layer, transport processes in the ambient air. Scale therefore has major physiological consequences: in many ways, bryophytes function differently from vascular plants. They use water when it is available, and suspend metabolism when it is not. In the course of drying out and rehydrating, they must pass through the levels of water stress experienced by DT vascular plants. They only transiently face the problem of metabolizing under water stress. It is like a 'drought avoidance' strategy in vascular plants. To understand the various physiological processes and stress responses of bryophytes comparing with higher plants' reactions it is essential to know the actual water status of the bryophyte tissue. Substantial external capillary water is generally present, and its amount can vary widely without affecting cell water status, which can result in difficulties in expressing precise actual water content (WC). The knowledge of full-turgor WC is principal. Desiccation tolerance is partly constitutive, allowing survival of rapid drying, and employs an active rehydration-induced repair and recovery. Bryophytes are capable of effective light absorption during their desiccation, rehydration, freezing and melting, with the help of coexisting alga and vascular plant energy dissipation mechanisms. Author summarize the physiological mechanisms, morphological features and alternative strategies that make bryophytes successful in a constantly changing microhabitat. The variability and time course of the regenerative and repair mechanism activated upon rehydration is significantly determined by the intensity and duration of the desiccation episode. DT bryophytes are exposed to frequent dehydration / rehydration cycles. Because of the unknown physiological history of field-collected plants, prior to laboratory tests on DT the plants should be fully dehardened by allowing trough a state of uninterrupted hydration under nonstressful conditions. This work used field-collected bryophytes for the study of desiccation tolerance with particular attention to the deacclimation (dehardening) of plants, rate of desiccation and water content, and also takes into account the ecological factors of rehydration, the physiological processes that take place and contribute to regeneration.