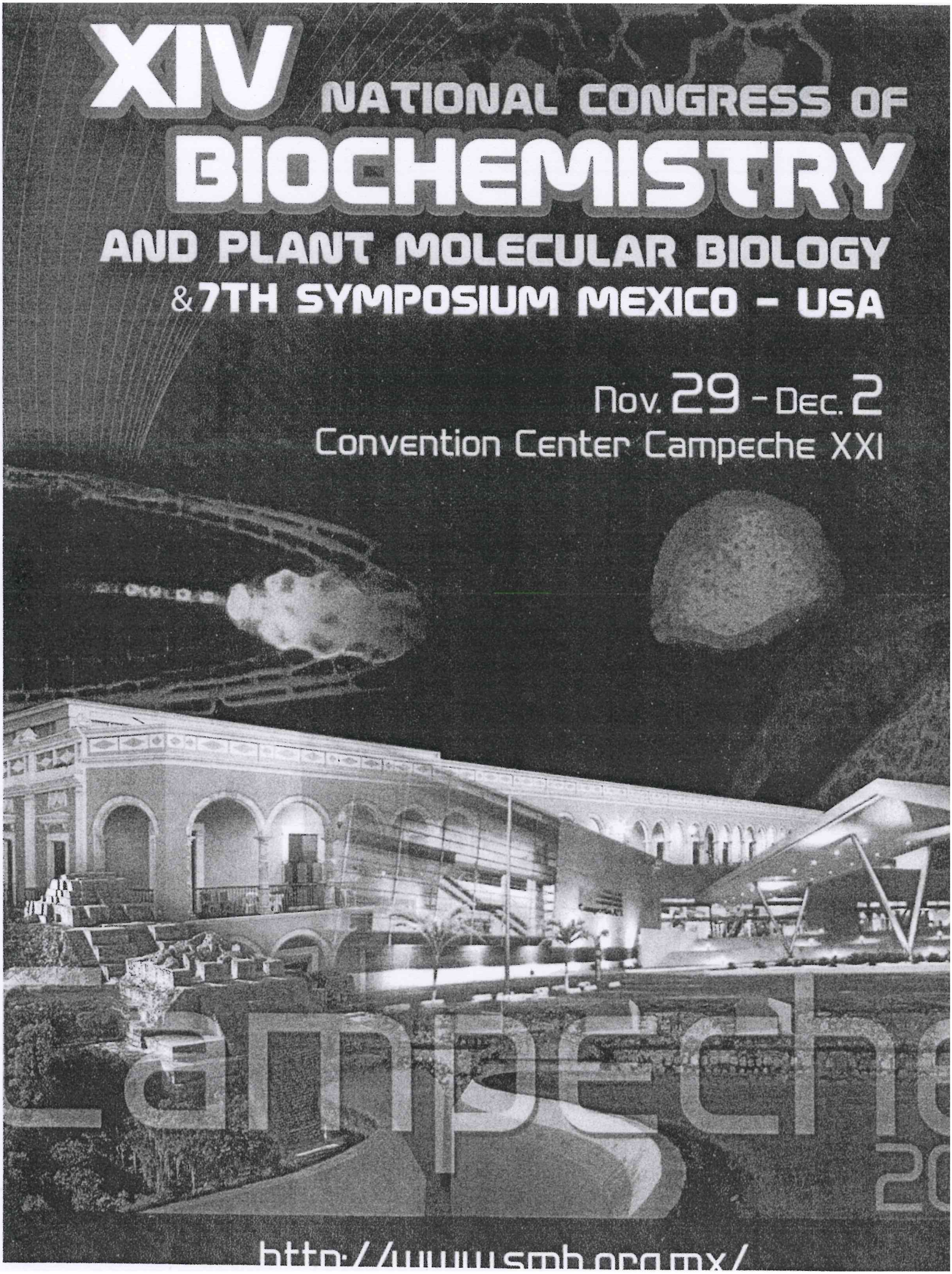
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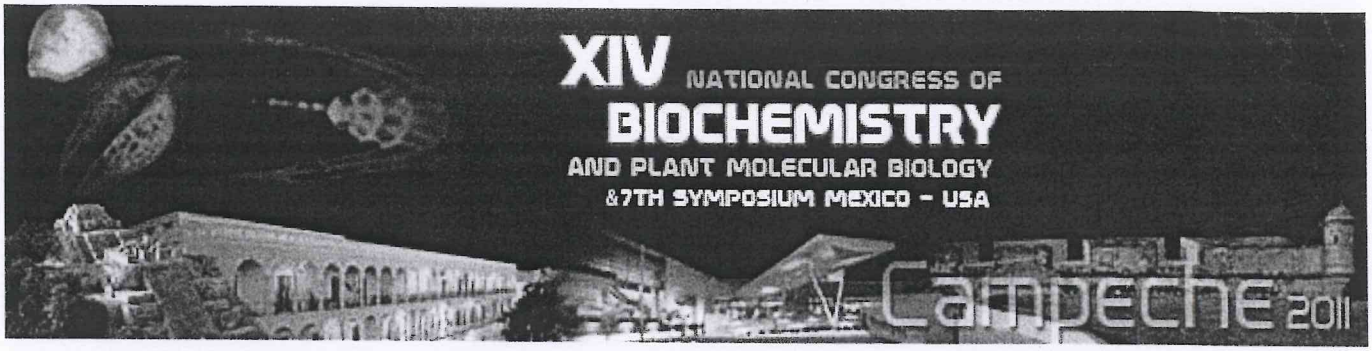

Physiological and morphological responses of plants under water stress by infrared spectroscopy.

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Water stress has negative effects on growth and productivity of plants; it is the result of limiting these to absorb water, which leads to morphological, physiological, biochemical and molecular changes[1]. A simple and efficient strategy to analyze these changes is the infrared spectroscopy technique. The study of metabolic and physiological responses in stressed plants was performed by three consecutive dehydration kinetics of *Selaginella lepidophylla*, *Selaginella sartorii*, *Arabidopsis thaliana* and *Distichlis spicata;* where parameters such as weight, photosynthetic efficiency and mid-infrared absorbance (in bands associated to sugars, proteins and intracellular water) were measured in vegetative tissues. The results showed that *S. lepidophylla* and *S. sartorrii* presented an adaptation period, during which retained the water at the same time that the band associated to sugars was increased and the band associated to protein remained constant in intensity. After this adaptation period the water to decline as did sugars and proteins. *Distichlis spicata* and *A. thaliana* did not show this retention time. Finally tolerant plants showed the ability of rehydration and recovered their photosynthetic activity and turgor after the three dehydration processes. This results confirm that the production of sugar is a plant strategy of protect against dehydration, whose function is to protect the proteins and cellular structures during estrés[2].

1. Wang, X.Q., Ullah, H., Jones, A.M., and Assmann, S.M. (2001). G protein regulation of ion channels and abscisic acid signaling in Arabidopsis guard cells. Science 292, 2070–2072.

2. Matthew A.J. y Andrew J. Wood. (2007). Plant Dessication Tolerance. Blackwell Publishing. pp 311.