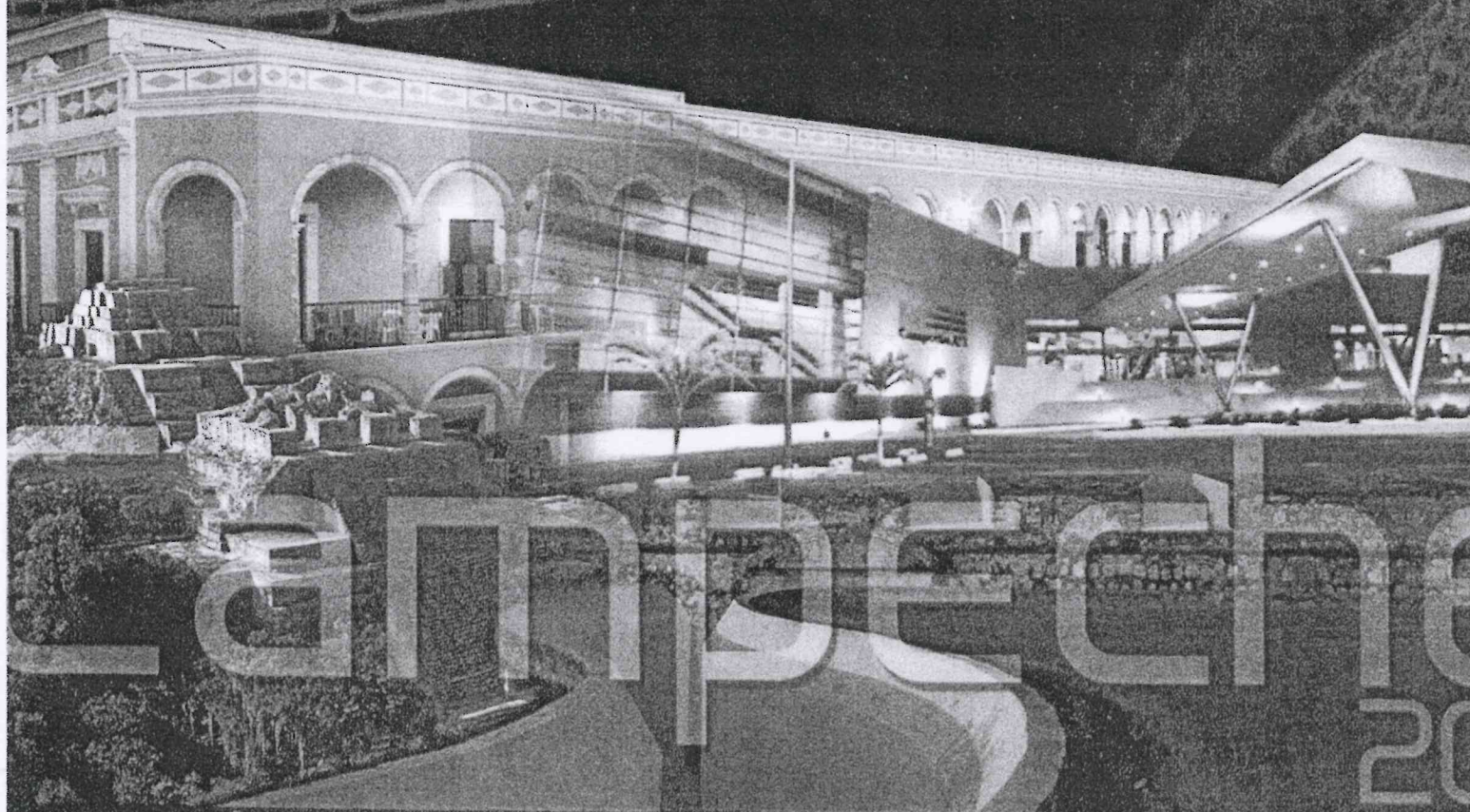


# XIV NATIONAL CONGRESS OF BIOCHEMISTRY

AND PLANT MOLECULAR BIOLOGY  
& 7TH SYMPOSIUM MEXICO - USA

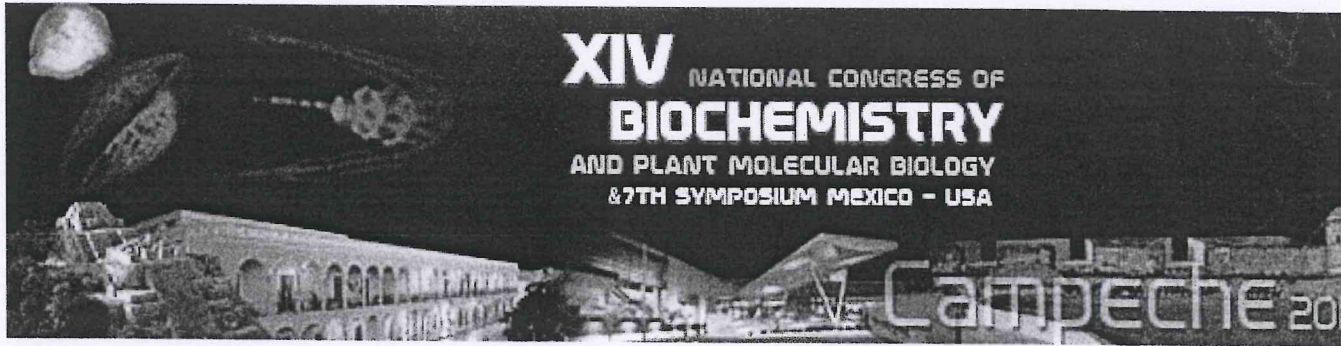
Nov. 29 - Dec. 2

Convention Center Campeche XXI



<http://www.smb.org.mx/>





## Effects of glucose and abscisic acid on the development of *P. cuspidatum*

\*Alejandra Chamorro-Flores, \*Cervantes-Díaz F., \*Villalobos-López M.A., \*Valadez-Hernández E., Hernández-Pérez M. L. and \*  Arroyo-Becerra A.

\*Centro de Investigación en Biotecnología Aplicada. Tepetitla, Tlaxcala, C.P. 90700.

Corresponding author: [alarroyo@ipn.com](mailto:alarroyo@ipn.com).

Sugars are molecules that regulate plant development, physiology and metabolism. It is known that, in *Arabidopsis*, sugars carbohydrates regulate the seedlings early development using signalling mechanisms involving glucose (Glc) and abscisic acid (ABA), a phytohormone. However, in lower plants such as bryophytes, the signalling role of Glc and ABA has not been explored. In this work, we have studied the effects of Glc and ABA during the germinative and protonemal developmental stages of the moss *P. cuspidatum*. Protonemata were cultured *in vitro* for ten days under control conditions (no Glc or ABA), and then transferred to experimental media with increasing concentrations of Glc (0, 100, 300, 500, 700 and 1000 mM) and ABA (0, 100, 300 and 500 nM). Protonemata were growth under experimental conditions for 15 days. Spore germination kinetics studies were also carried out under control and experimental concentrations of Glc (0, 100, 300 and 500 mM) and ABA (0 and 100 nM). Sorbitol (Stl) was used as an iso-osmotic agent in all experiments. Results: Protonemata exposed to Stl and Glc (100 and 300 mM) became denser and a darker shade of green than controls. Furthermore, spore germination was delayed by 300 mM Glc, inhibited completely by 500 mM Glc, and inhibited approximately 50% by 500 mM Stl. Surprisingly, ABA had a post-germinative effect, inhibiting gametophore formation in presence of 100 mM Glc. These results strongly suggest that Glc has a signalling role during the development of protonemata, increasing tissue density and inhibiting spore germination, whereas Glc seems to have an interaction with ABA during a post-germinative stage, inhibiting the formation of gametophores. We thank SIP and CONACYT for student fellowships and grant financial support.