CHANGES IN THE FUNCTIONALITY OF PLASMA MEMBRANE OF *RHIZOPUS STOLONIFER* BY ADDITION OF CHITOSAN.

ABSTRACT

The effect of chitosan (2 mg/ml) on the functionality of the plasma membrane of the *Rhizopus stolonifer* was studied. This study focuses on the changes in the integrity of the plasma membrane, external minimum medium pH, membrane potential, potassium efflux and determination of membrane phospholipids and proteins and of the H^+-ATPase enzymatic kinetic activity. The results demonstrated that the membrane integrity diminishes gradually during 6 h of incubation, that there was no change in the external minimum medium pH and that the spores treated with chitosan showed the lowest membrane potential compared with the control. The results also revealed an increase of five times of potassium efflux by the addition of chitosan. There were no significant observed differences in the content of total phospholipids in both treatments. However, protein content was reduced approximately 40% and total H^+-ATPase activity decreased 52% in the presence of chitosan. Chitosan treatments diminished the kinetic parameters (Vmax and Km) of the H^+-ATPase activity. The damage to the plasma membrane of *R. stolonifer* by the presence of chitosan alters the H^+-ATPase, affecting the physiological and metabolic functions of this phytopathogen fungus.

http://onlinelibrary.wiley.com/doi/10.1111/j.1439-0434.2011.01802.x/abstract

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Revista: Journal Phytopathology. Volume 155, Issue 7-8, pages 563–568.