

## **PA 18 - Potassium Sorbate Diffusivity in Chitosan Films: Active Package Films**

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Chitosan films have potential application in different areas such as food, pharmaceutical, agricultural, medicine, etc, since such a film can be used as a vehicle for additives (antimicrobial agents, antioxidants, bactericides, fungicides, etc). They can be used as active- package-films.

Films containing 2.0% (in mass) of chitosan were obtained and their mechanical properties, water vapor transmission and solubility were investigated. The structure of chitosan matrix film was characterized by X-Ray diffraction and thermogravimetric analysis.

Antimicrobial film package acts to reduce, retard or inhibit the growth of microorganisms during storage. Different concentrations of potassium sorbate, an antimicrobial largely utilized in food industries, was incorporated into chitosan matrix. Our studies shoed that the kinetics of potassium sorbate release followed the Fick's law of diffusion. At 25°C, release of potassium sorbate from chitosan films was maintained for 4 hours and no lag-time was observed. Incorporation of 15mg/L and 50mg/L of potassium sorbate resulted in diffusivities values in the order of  $10^{-8}$  m<sup>2</sup>/s.