

### **CONDUCTIVITY AND FTIR STUDIES ON PVA/CHITOSAN-LiCF<sub>3</sub>SO<sub>3</sub>**

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#### **ABSTRACT**

New polymer electrolytes using Chitosan and Poly(vinyl alcohol)[PVA] with different weight percent (wt%) have been prepared using solution cast technique. The low conductivity of this system (S/cm) was enhanced due to the dissociation of lithium trifluoromethanesulfonate (LiCF<sub>3</sub>SO<sub>3</sub>) added to the blend. The ac conductivity of the polymer electrolytes has been investigated by using impedance spectroscopy method in the frequency range of 100 kHz to 5 MHz at room temperature. Result for conductivity studies has shown that the sample with 45% lithium trifluoromethanesulfonate exhibits the highest conductivity of  $1.241 \times 10^{-4}$  S/cm at room temperature. The enhanced conductivity observed was due to complexation occurred between the Li<sup>+</sup> cation and the lone pair electron of the nitrogen (N) and oxygen (O) atoms present in the polymer blend. Infrared spectroscopy was employed to confirm the polymer-salt complexation.

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