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MEENAKSHI COLLEGE FOR WOMEN
(Autonomous)

Kodambakkam, Chennai - 600024, India

BOOK OF ABSTRACTS

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For

Asian Society for Solid State Ionics

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Construction of Primary Sodium Ion Conducting Battery Fabrication using Biomaterial *Cassia Auriculata* based Solid membrane as an Electrolyte

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Abstract

In this study, sodium ion-conducting bio-membrane as an electrolyte is developed using *Cassia Auriculata* [1] flower as host material incorporated with various compositions of Sodium Chloride (NaCl) by Solution Casting method. The prepared biomaterial based membrane has been characterized using X-ray diffraction analysis (XRD) in order to examine the crystalline/amorphous nature of the membrane. AC impedance technique has been used to measure the ionic conductivity of the prepared bio-membranes. 1g of *Cassia Auriculata* incorporated with 0.7 M.wt % of NaCl membrane exhibits improved high ionic conductivity of 1.6251×10^{-1} S/cm at room temperature. Transference Number Measurement (TNM) is studied to assure that the major transportation is because of ions. Primary sodium-ion conducting battery [2] is fabricated using the membrane resulting with high ionic conductivity as an electrolyte with sodium metal as anode and MnO_2 as cathode. The constructed battery shows an open circuit voltage (OCV) of 2.23V and 19 μA of current is drawn while connecting a load of 100 K Ω to the constructed battery.

Reference

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