

CURRICULUM VITAE

Name in full : R.Chitra
Qualification : M.Sc., M.Phil.,Ph.D
Designation : Assistant Professor
Date of Joining : 20.03.2024
Experience : 17 Years
Email Id : r.chitrasureesh@gmail.com
Research Area : Solid State Ionics (Energy Storage Materials)
Web of Science Research ID : AAA -8980-2021
Scopus ID : 57203531919
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Research Experience

Ph.D Thesis Title:

Synthesis and Characterization of seaweed iota carrageenan solid biopolymer electrolytes for lithium ion batteries

Gist of Ph.D Work:

- Preparation of iota carrageenan based biopolymer electrolytes for lithium ion batteries with three different lithium salts
- Characterization of biopolymer electrolytes through XRD, FTIR, Electrochemical Impedance Analysis, Differential Scanning Calorimetry Analysis, Linear Sweep Voltametry Analysis
- Fabrication of Primary lithium battery
- Fabrication of lithium ion battery with the best conducting prepared biopolymer electrolytes

List of Publications (Web of Science SCI/SCIE & Scopus Indexed)

- Synthesis and Characterization of iota-Carrageenan solid biopolymer electrolytes for electrochemical applications

R. Chitra, P.Sathya, S.Selvasekarapandian, S.Monisha, V. Moniha, S.Meyvel

Ionics (2019) 25: 2147-2157 (IF 2.8)

- Synthesis and characterization of biopolymer electrolyte based on tamarind seed polysaccharide, lithium perchlorate and ethylene carbonate for electrochemical applications
L Sampathkumar, P Christopher Selvin, S Selvasekarapandian, P Perumal, **R Chitra**,
Ionics (2019) 25: 1067-1082 (IF 2.8)
- Synthesis and characterization of iota-carrageenan biopolymer electrolyte with lithium perchlorate and succinonitrile (plasticizer)
R. Chitra, P.Sathya, S.Selvasekarapandian, S.Meyvel
Polymer Bulletin (2020) 77:1555-1579 (IF 3.2)
- Investigation of seaweed derivative iota-carrageenan based biopolymer electrolytes with lithium trifluoromethanesulfonate
R. Chitra, P.Sathya, S.Selvasekarapandian, S.Meyvel
Materials Research Express 7 (2020) 015309 (IF 2.3)
- Lithium ion conducting biopolymer membrane based on K-carrageenan with LiNO_3
I Arockia Mary, S.Selvanayagam, S.Selvasekarapandian, **R Chitra**, Leena, T Ponraj
Ionics (2020) 26: 4311-4326 (IF 2.8)
- Study on novel biopolymer electrolyte Moringa oleifera gum with ammonium nitrate
R. Chitra, M.VengadeshKrishna, S.Selvasekarapandian
Polymer Bulletin (2021) 1-18 (IF 3.2)
- Investigation of blend biopolymer electrolytes based on Dextran-PVA with ammonium thiocyanate
T. Maheshwari, K. Tamilarasan, S. Selvasekarapandian, **R. Chitra**, S. Kiruthika
Journal of Solid State Electrochemistry (2021) 25:755-765 (IF 2.5)
- Na-ion conducting biopolymer electrolyte based on tamarind seed polysaccharide incorporated with sodium perchlorate for primary sodium-ion batteries
K Maithilee, P Sathya, S Selvasekarapandian, **R Chitra**, M Vengadesh Krishna, S Meyvel
Ionics (2022) 28: 1783-1790 (IF 2.8)
- Lithium ion conducting biopolymer membrane based on kappa carrageenan with LiCl and its application to electrochemical devices
IA Mary, S Selvanayagam, S Selvasekarapandian, **R Chitra**, M V Krishna
Materials Today: Proceedings (2022) 58, 855-861

- Synthesis and characterization of Dextran, poly (vinyl alcohol) blend biopolymer electrolytes with NH_4NO_3 , for electrochemical applications

T Maheshwari, K Tamilarasan, S Selvasekarapandian, **R Chitra**

International Journal of Green Energy (2022) 19 (3), 314-330 (IF 3.2)

- Investigation on tamarind seed polysaccharide biopolymer electrolyte doped with sodium nitrite and EC plasticizer for primary sodium battery

K Maithilee, P Sathya, S Selvasekarapandian, **R Chitra**, S Meyvel

Bulletin of Materials Science (2023) 46 (3): 114 (IF 1.8)

Conference Presentations

- Preparation and Characterization of iota carrageenan based polymer electrolyte

R. Chitra, P.Sathya, S.Selvasekarapandian, S.Meyvel

DST sponsored National conference on “Nanomaterials (NCN 2019)” at LRG Government Arts College For Women, Tirupur on 24.01.2019 & 25.01.2019

- Study on ionic conductivity of biopolymer electrolyte iota carrageenan with lithium salts

R. Chitra, P.Sathya, S.Selvasekarapandian, S.Meyvel

CSIR sponsored One day National Conference on “Recent Trends in Smart Materials and Technologies in Bio Resources and Environment Safety” at Velalar College of Engineering and Technology, Erode on 04.09.2019

- Comparative study of lithium cation based iota carrageenan solid natural polymer electrolytes

R. Chitra, P.Sathya, S.Selvasekarapandian, S.Meyvel

Two day International conference on “Innovations in Physical Sciences, Information Technology and Social Sciences” at Sri Vidya Mandir Arts and Science College (Autonomous), Uthangarai on 14.02.2020 & 15.02.2020

- Study on Moringa gum biopolymer electrolyte with lithium salt

R. Chitra, L.Sampath kumar, P.Sathya, S.Meyvel

AICTE sponsored Second International Conference on “Energy, Environment and Advanced materials for a sustainable future (ICEEAMSF – 2021) at Kongu Engineering College, Perudurai on 15.07.2021 & 16.07.2021

- ➡ Comparative study of lithium cation based tamarind seed polysaccharide solid natural polymer electrolytes

L.Sampath kumar, **R. Chitra**

AICTE sponsored Second International Conference on “Energy, Environment and Advanced materials for a sustainable future (ICEEAMSF – 2021) at Kongu Engineering College, Perudurai on 15.07.2021 & 16.07.2021

- ➡ Study on iota carrageenan based biopolymer electrolyte with zinc nitrate for Zinc batteries

R.Chitra, L.Sampath kumar, K.Maithilee

International Virtual conference on Recent trends in Material Science (ICRTMS 2021) at Bannari Amman Institute of Technology, Sathyamangalam on 20.12.2021 & 21.12.2021

- ➡ Synthesis of Eco friendly biodegradable plastic via *Commiphora caudata* plant gum and poly vinyl alcohol

R. Chitra, K.Maithilee

International conference on Management, Engineering, Science and Humanities (MESH 2023) at Builders Engineering College, Kangeyam on 03.06.2023

- ➡ Investigation on *Cardiospermum halicacabum* bio-based electrolyte with lithium nitrate for energy storage devices

R.Chitra, L.Sampath kumar

18th ASIAN conference on Solid State Ionics (ACSSI -2024) at Meenakshi College For Women, Chennai from 19.02.2024 to 22.02.2024

Patent Details

- ➡ **A Moringa oleifera gum based biopolymer composition and a method to synthesize the biopolymer**

Patent : Australian Innovation Patent

Patent No : **[AU2021106372A4](#)**

Date of Publication : 02.12.2021

Legal Status : Active

Other Academic Activities

- ▶ Acted as a **Resource person and Delivered a lecture** on “Primary and Secondary Batteries” in the “National Workshop on Super ionic conductors and its Application to Battery, Fuel cell and Supercapacitor” organized by the Departments of Physics and Chemistry, Fatima College, Madurai on 15.12.2022 and 16.12.2022