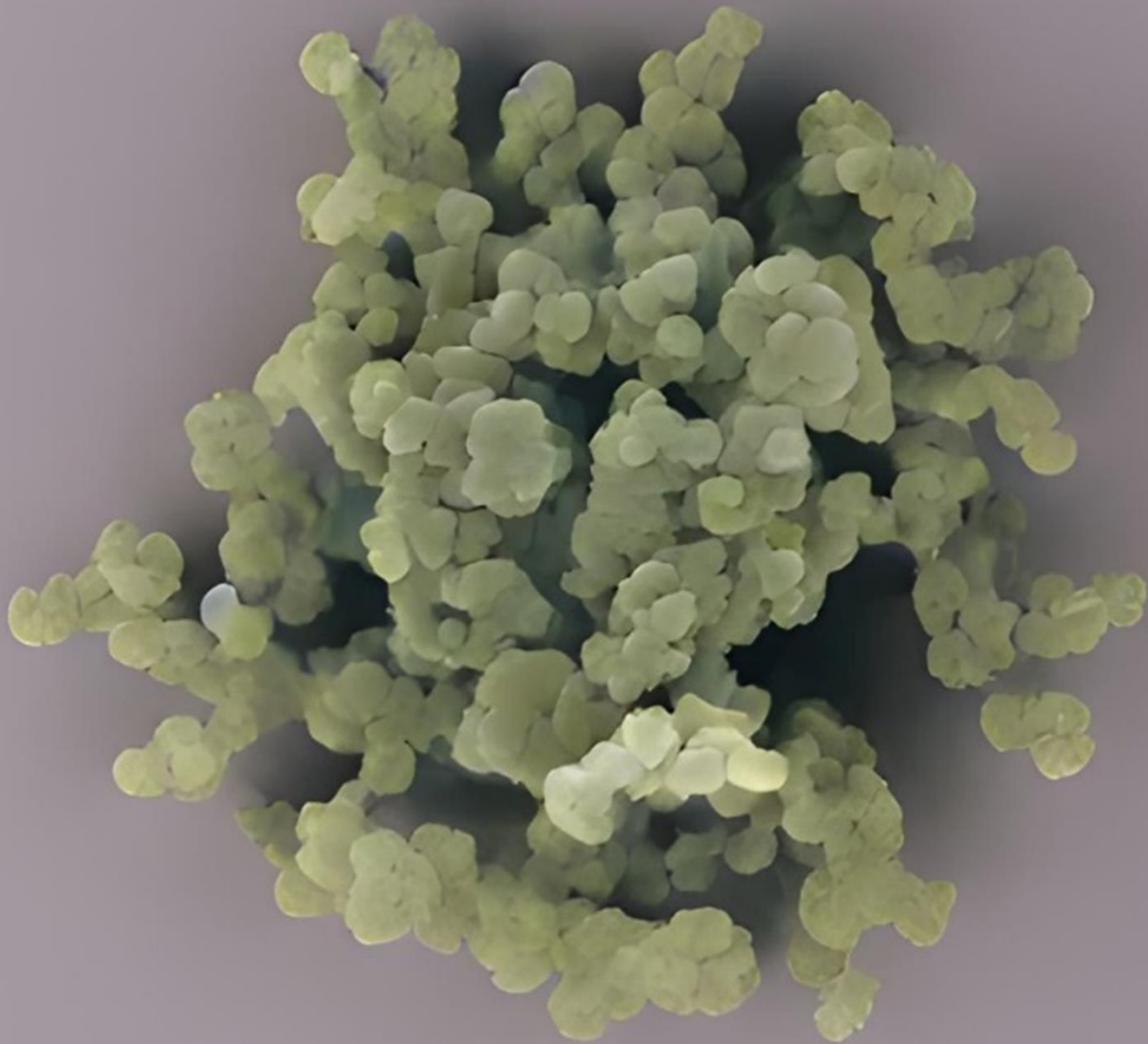


# JOURNAL OF APPLIED MATERIAL SCIENCE



## Contents

### Volume 2, No. 1, March 2026

#### Editorial ..... 260101

Aims and scope of the journal, a brief submission guideline, and the list of the editorial board.

Ahmad Allahbakhsh

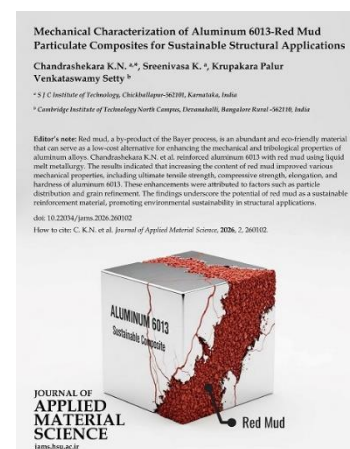
doi: 10.22034/jams.2026.260101

#### Mechanical Characterization of Aluminum 6013-Red Mud Particulate Composites ..... 260102 for Sustainable Structural Applications

Chandrashekara et al. reinforced aluminum 6013 with red mud using liquid melt metallurgy. The results indicated that increasing the content of red mud improved various mechanical properties, including ultimate tensile strength, compressive strength, elongation, and hardness of aluminum 6013. These enhancements were attributed to factors such as particle distribution and grain refinement. The findings underscore the potential of red mud as a sustainable reinforcement material, promoting environmental sustainability in structural applications.

Chandrashekara K.N., Sreenivasa K., Krupakara Palur Venkataswamy Setty

doi: 10.22034/jams.2026.260102



#### Photoelectrochemical Hydrogen Generation from Seawater Using ..... 260103 Modified g-C<sub>3</sub>N<sub>4</sub>/NiO Photo-electrode Heterojunction



Bhattacharjee et al. studied the process of seawater splitting for hydrogen production using a nickel oxide (NiO)/iron-doped graphitic carbon nitride (Fe/g-C<sub>3</sub>N<sub>4</sub>/NiO) photoelectrode in combination with polyvinyl alcohol membranes, along with a molecular sensitizer. The proposed approach has the potential to promote sustainable green hydrogen production from seawater.

Jyoti Bhattacharjee, Preetam Datta, Abdul Aziz Shaikh, Akash Sathianarayanan, Milan Kumar Mandal, Subhasis Roy

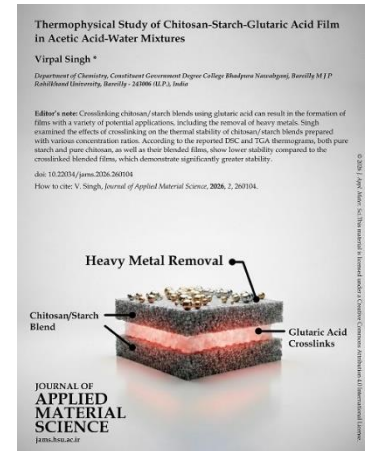
doi: 10.22034/jams.2026.260103

**Thermophysical Study of Chitosan-Starch-Glutaric Acid Film ..... 260104  
in Acetic Acid-Water Mixtures**

In this study, Singh examined the effects of crosslinking on the thermal stability of chitosan/starch blends prepared with various concentration ratios. According to the reported DSC and TGA thermograms, both pure starch and pure chitosan, as well as their blended films, show lower stability compared to the crosslinked blended films, which demonstrate significantly greater stability.

Virpal Singh

doi: 10.22034/jams.2026.260104



**Photocatalytic Degradation of MB-Dye by CZTS Catalyst ..... 260105**



Iliyas and Preetha developed copper zinc tin sulfide (CZTS) thin films using the spin coating technique and assessed their photocatalytic activity with a solution of methylene blue (MB) dye. The study found apparent rate constants of  $0.00562 \text{ min}^{-1}$  for a  $2 \text{ cm}^2$  catalyst and  $0.00674 \text{ min}^{-1}$  for a  $4 \text{ cm}^2$  catalyst, with degradation rates of about 46% and 60% after 120 minutes, respectively. These results highlight that photocatalytic degradation efficiency is influenced by both the thin film's surface area and the irradiation time.

C.T. Iliyas, K.C. Preetha

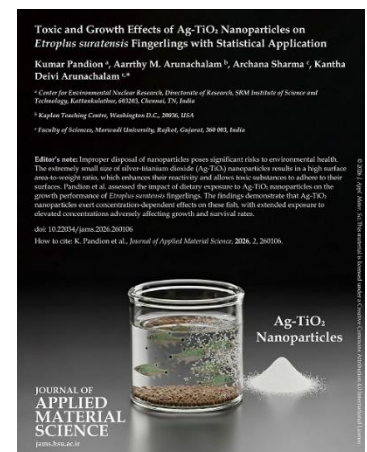
doi: 10.22034/jams.2026.260105

**Toxic and Growth Effects of Ag-TiO<sub>2</sub> Nanoparticles on *Etroplus suratensis* ..... 260106  
Fingerlings with Statistical Application**

Pandion et al. assessed the impact of dietary exposure to Ag-TiO<sub>2</sub> nanoparticles on the growth performance of *Etroplus suratensis* fingerlings. The findings demonstrate that Ag-TiO<sub>2</sub> nanoparticles exert concentration-dependent effects on these fish, with extended exposure to elevated concentrations adversely affecting growth and survival rates.

Kumar Pandion, Aarrthy M. Arunachalam, Archana Sharma, Kantha Devi Arunachalam

doi: 10.22034/jams.2026.260106



## Evaluation of Urease Activity Assessed on Urea Concentration Using ..... 260107 Tannic Acid-Silver Nitrate Colorimetric Method



Imohiosen et al. explored how urea concentration affects urease activity using a colorimetric method with tannic acid and silver nitrate. Low concentrations limited enzyme activity, while an optimal concentration of 3.00 mM produced the highest absorbance, indicating maximum activity. Concentrations above 4.00 mM decreased absorbance, likely due to pH shifts. Low urea levels showed sharp SPR peaks at 414 nM, whereas higher levels produced broader peaks, suggesting substrate inhibition. These findings support the development of a sensitive urea biosensor.

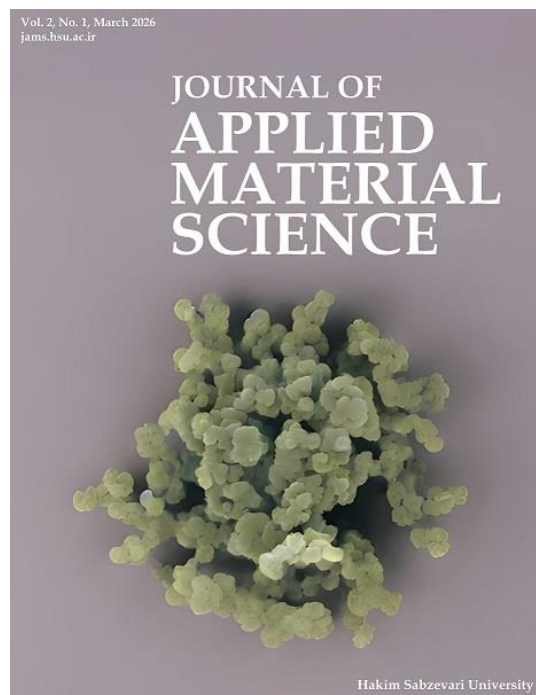
Ojeaga Imohiosen, Adamu Makanta Salihu, Matthew Onyema Agu, Sanusi Abubakar

doi: 10.22034/jams.2026.260107

### ABOUT COVER

Polymeric aerogels made from resins can serve as precursors for developing carbon aerogels, which have the potential to revolutionize porous materials for various advanced applications. The cover features a colored, processed SEM image of a novolac-derived carbon aerogel with a high level of microporosity and exceptionally low thermal conductivity.

(Note: The covers of this journal are created in part using artificial intelligence (AI) technologies, with direct human supervision. AI and AI-assisted technologies are permitted only for generating graphical abstract suggestions. If such technologies are used in the manuscript preparation, it must be clearly disclosed in the Acknowledgments section.)



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