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Editorial

Dear Readers,

Science is a continuous journey of learning, unlearning, and discovering something new. Every question leads us to an answer, and every answer opens the door to new questions. This never-ending pursuit of science is what inspires us to make Mapana Journal of Sciences a platform for sharing scientific ideas and discoveries. With this, I am pleased to present the July-Sep'26 issue.

This issue opens with a study by Bhattacharjee et al., who developed an Aspen Plus simulation model to investigate the gasification of *Casuarina equisetifolia* biomass under varying temperatures and air-to-biomass ratios. Increasing the gasification temperature enhances hydrogen production while reducing carbon dioxide formation, while higher air-to-biomass ratios favour carbon dioxide production over combustible gases. Sheenu and Ajitha investigated the larvicidal potential of *Clerodendrum infortunatum* against *Culex quinquefasciatus,* a mosquito responsible for transporting lymphatic filariasis. The potential of plant-derived compounds as environmentally friendly alternatives to synthetic insecticides for sustainable mosquito control is highlighted in this study. Medicinal plants have long been valued for their therapeutic properties. Understanding their chemical composition continues to open new possibilities for developing natural treatments. Parameswari et al., investigated the phytochemical composition and biological properties of *Justicia adhatoda* leaves using HPTLC, GC-MS, and biochemical assays. Their study highlighted the plant's potential as a source of natural compounds for further therapeutic research.

Sridevi et al., investigated the chitosan incorporation on the electrical and third-order nonlinear optical properties of strontium titanate ($SrTiO_3$) nanoparticles. The incorporation of chitosan significantly reduced the electrical resistance and enhanced nonlinear optical properties. Sharma studied the optical behavior of $Ge_{10}Se_{90}$ semiconductor glass through experimental measurements and theoretical dispersion models. With an optical band gap of approximately 1.95 eV and an Abbe number of 17.21, the material exhibits strong chromatic dispersion. This opens possibilities for its use in prisms and other dispersion-based optical applications.

Managing Data traffic efficiently becomes important to prevent congestion and maintain smooth connectivity. Addressing this challenge through mathematics, Augustine and Jose introduced a new graph-labeling technique called parity sum cordial labeling, which assigns labels to network connections based on their numerical properties. The authors presented a simple approach to distributing traffic between channels. Coming to the topic of "Temperature", temperature influences not only our environment but also the survival, growth, and distribution of living

populations. Recognizing its importance, Joseph et al., developed a mathematical model using nonlinear partial differential equations, treating temperature as a continuously varying factor in population dynamics.

Anusuya et al., proposed a healthcare recommendation framework that combines reinforcement learning, contrastive learning, and conservative Q-learning to improve recommendation accuracy and training stability. Rajkamal et al., reviewed the use of enzymes in producing structural lipids with improved nutritional and functional properties. The review discusses various production methods, their applications in infant nutrition and food products, and the challenges of making these processes suitable for large-scale industrial use.

The editorial team expresses its sincere gratitude to all the authors and reviewers for their valuable contribution. We hope this **"Continuous pursuit of Science"** leads to new discoveries and a deeper understanding of the world around us.

Dr Manoj Balachandran

Editor