UNIVERSITY OF ENGINEERING AND MANAGEMENT, KOLKATA

INSTITUTE OF ENGINEERING AND MANAGEMENT

DEPARTMENT OF BIOTECHNOLOGY

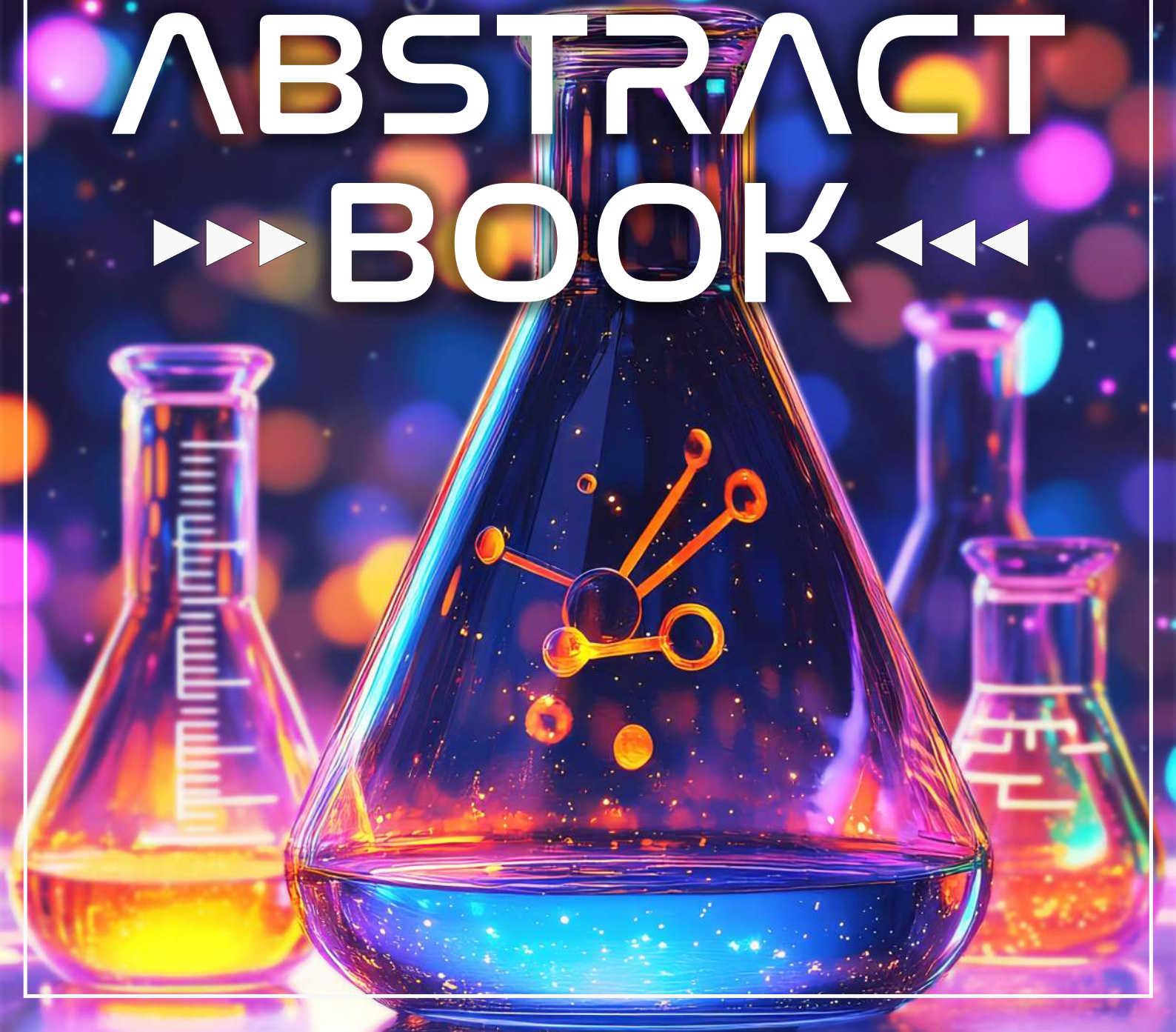
PRESENTS

BIOSPECTRUM'24

IN COLLABORATION WITH

UNIVERSITATEA APOLLONIA IASI, ROMANIA

ABSTRACT BOOK



International Conference on Biotechnology & Biological Sciences

14th to 16th November 2024

About Biospectrum

The Department of Biotechnology at the University of Engineering and Management, Kolkata, proudly presents BIOSPECTRUM 2024! We return once again with the International Conference on Biotechnology and Biological Sciences. BIOSPECTRUM has become an eagerly anticipated fixture on the global biotech calendar. Each year, it brings together the brightest minds and pioneering leaders in the industry, creating an unmatched platform for innovation, collaboration, and discovery in biotechnology.

This year, BIOSPECTRUM 2024 will take place from November 14th to 16th, marking a special chapter as the event is hosted in collaboration with the University of Iasi, Romania. Attendees, whether joining us physically in Kolkata or virtually from around the world, will experience three days of intensive dialogue, with sessions covering genetic engineering, biomedical advances, sustainable agriculture, and environmental biotechnology.

BIOSPECTRUM 2024 will explore diverse, cutting-edge themes, from CRISPR and synthetic biology to advancements in regenerative medicine, bioinformatics, and sustainable biotech solutions for climate change. The event promises an immersive experience where attendees can connect with leading experts, gain insights into groundbreaking research, and even participate in live demonstrations of the latest biotechnology tools and techniques. More than just a conference, BIOSPECTRUM 2024 will be a celebration of innovation, a crossroads for global thinkers, and a launching pad for the next big ideas that could transform how we understand and interact with the living world.

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An in vivo study of enhanced hypoglycemic activity of the nanosized metformin

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ABSTRACT

Nanosized metformin has been developed by employing mechanical alloying of the pristine drug for 18h. Through the analysis of XRD patterns, FESEM images, and UV-Vis absorption spectra, the structural and microstructural characteristics of both pure and nano metformin have been determined. An in-vivo study has also been performed by applying both pure metformin and nano metformin on the 18-hour fasted normal mice. It has been confirmed that the FBGLs (fasting blood glucose level) of mice have been reduced more in the case of nano metformin compared to that of pure metformin. This work suggests a novel way to increase the effectiveness of a drug without the need for any additional outside agents—just by reducing the drug's particle size to the nanoscale.

Keywords: Microstructure; Nanoedicine; in vivo study; XRD; FESEM

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Catalytic role of Cu(II) on the oxidation of biologically active 3-mercapto-L-alanine in borate buffer

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ABSTRACT

Oxidation of biologically active 3-mercapto-L-alanine for the formation of disulphide bond (cystine) catalyzed by Copper(II) in alkaline borate buffer and oxygenated condition has been carried out. The progress of the reaction was monitored using an optical spectrophotometer. Kinetic observations and initial rate data reveal a second order dependence of rate of the oxidation process on 3-mercapto-L-alanine concentrations. In the range of concentration of the metal ion, Copper(II), the finding is unit order dependence of rate on catalyst. Over the range of acidity conditions maintained using borate buffer in the present work, the rate exhibits a complex dependence on acid concentration. The influence of ionic strength on the initial rate of reaction is conclusive of the fact that there was formation of intermediate complex possibly involving ions of opposite charge. Based on all the kinetic observations and the derived data, the reactive species of 3-mercapto-L-alanine under our reaction conditions is predicted and a suitable mechanism for the occurrence of electron transfer process is suggested. The good agreement of the computed dissociation constant of the substrate leading to its formation of different forms when compared with the literature value validates our proposal of the mechanism of the 3-mercapto-L-alanine to cystine conversion.

Keywords: 3-mercapto-L-alanine, borate buffer, Reaction order, Spectrophotometer, Copper catalyst.