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EXPERTISE
Biocatalysis, Chemical Biology and Computational Chemistry

Prof. Dr. Mohd Basyaruddin is a Senior Professor of Chemistry and was appointed as a Distinguished Visiting Scholar at the University of California, Berkeley. He did his post-doctoral in structural biology at the University of Edinburgh and developed skills in synchrotron radiation in Daresbury and Grenoble, and protein engineering at Osaka University. He is among the pioneer chemists in this country to synergise experimental results with theoretical insights. His promotion to a Professorship at the age of 36 made him among the youngest in Malaysia. He won the Young Scientist recognition from various bodies including IUPAC, American Chemical Society and InterAcademy Panel. He has secured more than RM 15 million to conduct research, published > 200 technical papers, > 300 proceedings and > 20 patents. He has supervised and co-supervised more than 50 PhD and 50 MSc postgraduate students. He also actively involved in many schools and community outreach activities. He is the Founding Chairman of the Young Scientists Network, Fellow of the Academy of Sciences Malaysia and Fellow of Royal Society of Chemistry.

CURRENT RESEARCH INTERESTS:
His research interest encompasses a broad area from chemistry to structural biology involving biocatalysis, chemical biology, computational chemistry and nanobiotechnology.

- **Bioinspired Metal-organic Frameworks (MOFs) for Sustainability**

Design, synthesis and simulation of novel MOFs for chiral catalysis, encapsulation of enzymes and nanodelivery of chemicals for agriculture and nanomedicine

- **Aerosolized Palm-based Nanoemulsion for Pulmonary Drug Delivery**

Development of palm-based nanoaerosol and nanomagnetosol for smoking related diseases especially lung and oral cancer via pulmonary delivery.

- **Metallopeptide Catalysts for Green Organic Reactions**

Rational design and modification of peptides based on enzyme active sites (enzyme mimics) for asymmetric and oxidation reactions, antimicrobial agents and xenobiotics degradation.

- **Antifreeze Peptides**

Design, synthesis and simulation of a-helix antifreeze peptides based on genomes of Antarctic Inhabitants. Further research on cell cryopreservation and frozen food applications are also being investigated.

- **Solvent Engineering for Biotechnology Applications**

Rational design and molecular simulation study of room temperature ionic liquids and deep eutectic solvents for biocatalysis and DNA molecular salvation.

LINK TO POSTGRADUATE FIELD OF STUDY:
Enzyme Technology, Organic Chemistry, Theoretical and Computational Chemistry

ADDITIONAL INFORMATION:
www.ichebp.upm.edu.my