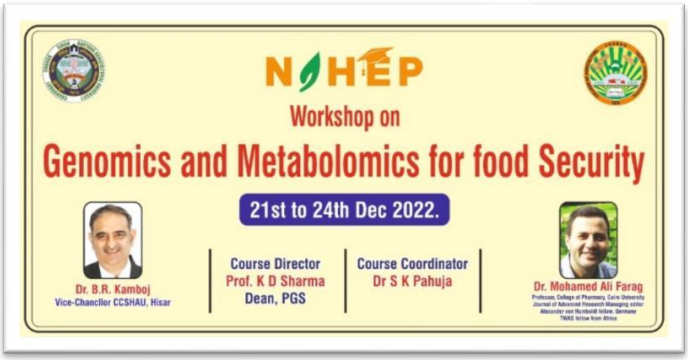
Training on Genomics and Metabolomics from 21st to 27 December, 2023



Dr. Mohamed Farag, Professor at the College of pharmacy, Cairo University and editor in chief of Journal of Advanced research and efoods, Wiley was invited to deliver several talks on developing scientific skills for graduate students at the College of agriculture, Hisar during the period of Dec 20th till Dec 27th in addition to presentation on the application of metabolomics in food analysis and agriculture. and below is an abstract for his talk themes.

Science Talk: A Tool for Learning Science and Developing Scientific thinking and better writing skills: The direct and engaging experiences of hands-on, inquiry-based science draw out students' sense of wonder, and readily lend themselves to conversation. Students are excited by their discoveries, motivating them to share, discuss, and debate their ideas with others. This talk is an instructional discourse practice that capitalizes on this enthusiasm and gives students opportunities to process their thinking and communicate about what they have seen and done. Through exchanging views with others, students develop their understanding of the science beyond what could be achieved individually. Examples are presented from real classroom experience of Dr. Farag on how to make have conversations in which students share their observations, interpret evidence, and explain their findings, and developing new perspectives to become better future entrepreneur, scientist or whatever they wish to be. The session shall include practical aspects of how to judge scientific material and tips on better writing skills among participants.

Metabolomics gateway for milestone discoveries in the post genomic era and application in food and agriculture: The ability to sequence whole plant and human genomes has taught us that our knowledge with respect to gene function is rather limited. Functional genomics analyses include investigations at the level of gene expression (transcriptomics), protein translation (proteomics) and more recently the metabolite network (metabolomics). Metabolomics is the study of global metabolite profiles in a system (cell, tissue, or organism) under a given set of conditions. The analysis of the metabolome is particularly

challenging due to the diverse chemical nature of metabolites in a cell. This presentation provides an overview of metabolomics and discusses its complementary role within system biology. It highlights how metabolome analyses are being conducted using different spectroscopic techniques NMR and MS, and how the highly complex data generated are analyzed. Specific examples will then be presented to illustrate how metabolomics can lead to valuable information relative to natural products biosynthesis, herbal medicines quality control analysis and biotic stress responses in plants and sea corals. In addition to this lecture, Dr Farag gave a lecture "How to build a successful academic carrier: The tip below the Iceberg" to post graduate students of College of Basic Sciences and Humanities, Hisar. Dr Farag has had several discussions with the scientific fraternity of the universities on various aspects of collaborative Research, guiding to students for entering into research institutions of Egypt and across globe. In support of his lectures, lectures for hands on training were also organized. Dr Rupesh Deshmukh, faculty of Central University, Mahindergarh delivered two lectures on Genomics today and genome editing tools with hands on training. Genome editing tools are revolutionary technologies that enable scientists to make precise changes to an organism's DNA. These tools, such as CRISPR-Cas9, TALENs, and zinc finger nucleases, have transformed the field of genetics and hold immense potential for applications in various fields, including medicine, agriculture, and biotechnology. By targeting specific genes, genome editing tools allow researchers to modify or delete genetic sequences, introduce new genes, or correct mutations. This precise manipulation of the genome offers opportunities for disease treatment, genetic engineering of crops, development of new therapies, and advancements in our understanding of genetic functions. However, the use of genome editing tools also raises ethical and safety considerations, which necessitate careful regulation and responsible application to ensure the potential benefits are balanced with potential risks. Online lecture was organized Dr. Saurabh Chandra Saxena, Assistant Professor, Department of Biochemistry, Central University of Haryana, Mahendragarh on Publication Ethics. Publication ethics are the set of principles and guidelines that govern the process of publishing scientific research and scholarly work. They ensure the integrity, quality, and credibility of published research while protecting the rights and interests of authors, reviewers, editors, and readers. Key aspects include authorship criteria, originality, data integrity, peer review, conflict of interest disclosure, transparency, corrections and retractions, and respecting intellectual property rights. Adhering to publication ethics is crucial for maintaining the trustworthiness and reliability of the scientific literature.