



Department of Chemistry & Microbiology

Govt. V.Y.T. PG Autonomous College, Durg

In Association with

Codon Biotech Pvt. Ltd., Noida

07 Days Virtual Collaborative Workshop

“Understanding Biochemical Techniques & Its Applications”

(14.09.2021 To 22.09.2021)

(An Initiative for Advanced Learners of UG Program)



A virtual Collaborative workshop for advanced learners of B.Sc. Biochemistry and B.Sc. Microbiology was organized in collaboration with Codon Biotech Pvt. Ltd., Noida (U.P.) during 14th September to 22nd September 2021.

Day 1: Inauguration sessions started with an overview of workshop theme and concept presented by Dr. Pragya Kulkarni followed by introduction of resource person by Dr. Anupama Asthana. In the first session of day 1, the resource person, Dr. Tripti Bhatnagar, MD, Codon Biotech explained the background of her institution and its major functions. Later in the second session, she virtually demonstrated all the basic and advanced instruments required for biochemical analysis of different types of samples.

Day 2: Importance of buffer in biochemical experiments was explained and requirements for preparation of Phosphate buffer was discussed. Weighing of the ingredients, Adjustment of pH and other precautions were also explained. On the same day, extraction of Protein from animal tissues was also demonstrated.

Day 3: Quantitative estimation of Protein by Lowry's method from extracted sample was elucidated with the help of standard curve and probable precautions were discussed.

Day 4: Quantitative estimation of total sugar in biochemical samples were demonstrated using DNS reagent. Preparation of DNS reagent, the chemistry behind the test and things to be taken care during experiment was also discussed. Estimation of sugar from blood samples were also demonstrated following Glucose Oxidase and Peroxidase enzymatic method. Fresh blood serum collected at fasting and post meal stages were used as sample and colour developed was estimated through spectrophotometer at 540 nm wavelengths. Calculation through standard curve was also explained.

Day 5: Importance of Nanotechnology and preparation of copper nanoparticles were demonstrated. Confirmation of synthesis of nanoparticles and their application were also conferred. On the same day, separation of biomolecules through Chromatographic method was also discussed and separation of Nicotine by Thin Layer Chromatography was established.

Day 6: Importance of water quality assessment was explained and detection of hardness in water as well as estimation of Nitrate, Chloride and Ammonia in different water samples was confirmed. Estimation of Microbial load in drinking water and assessment of potability of water was also clarified.

Day 7: Types of Milk adulterations, their sources and detection was demonstrated in different types of milk samples. Microbial contamination was estimated by Methylene Blue Reductase Test (MBRT) and importance of quality of milk was explained.

Day 8: The final day was dedicated to enzymatic reactions studies. Different types of enzymes, their natural sources and applications were discussed. Estimation of Amylase enzyme from saliva samples and study of effect of pH and temperature on enzymatic activity was demonstrated.

Discussion and question answer session was planned as every day activity. Students were provided with the protocols of each experiment one day preceding the schedule. All the students were assigned to solve a questionnaire based on the experiments to be submitted in handwritten form.

Outcome:

- The students were able to gain knowledge of important biochemical techniques and their application for future studies
- They were also developed awareness about precautions to be taken during each experiment and throughout instrument handling
- They were trained for writing daily learning outcome and solving daily tasks to improve their understanding
- They were also gain the time management and team work skills through the workshop



