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Departmental Seminar

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Seminar Title	: Treatment of laundry wastewater by dual-anode constructed wetland microbial fuel cell (CW-MFC) with simultaneous bioelectricity generation
Speaker	: Dr. Kasturi Dutta
Supervisor	: Dr. Nivedita Patra
Venue	: BM Department Seminar Room
Date and Time	: 19 May 2025 (04:15 PM)
Abstract	: Laundry discharge wastewater into waterbodies harm the ecosystem and the environment. Dual anode-constructed wetland-microbial fuel cell (DA-CW-MFC) stands out as a favored treatment method and maintenance of a redox gradient crucial for bioelectricity generation, with its design comprising garden soil, sand, rice husk, gravel, and cement graphite electrodes. Treatment & bioelectricity generation was performed for SDS & SDBS synthetic media by DA-CW-MFC system planted with <i>Canna indica</i> for 25 mg/L, 50 mg/L, and 100 mg/L. The highest average removal was found at 100 ppm for SDS influent with 98.9 % for 1st anode and 99.1% for 2nd anode. Similarly, the highest average removal was also found at 100 ppm for SDBS influent with 92.08% for 1st anode and 92.6% for 2nd anode. COD removal was also high for both the systems that follow the trend of anionic surfactant removal. Highest open circuit voltage of 1081 mV & 820 mV was found for SDS & SDBS systems respectively. Maximum power density was obtained at 100 mg/L concentration for both the system with 427.7 mW/m <sup>2</sup> & 410.34 mW/m <sup>2</sup> for SDS & SDBS respectively. This system was favorable for treatment and bioelectricity generation that helps in applicable reusable laundry wastewater for different purposes. Keywords: Dual anode constructed wetland microbial fuel cell ( DA-CW-MFC), Constructed Wetland, Laundry wastewater, anionic surfactant, Sodium dodecyl sulfate (SDS) , Sodium dodecyl benzene sulfonate (SDBS), polarization curve, power density ALL ARE CORDIALLY INVITED