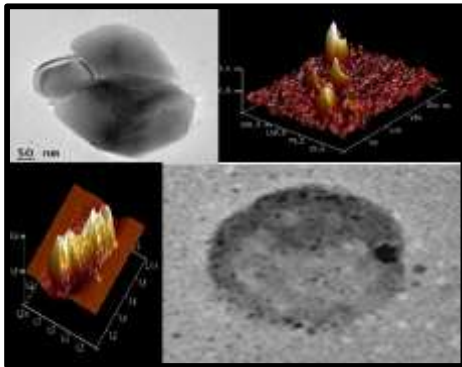
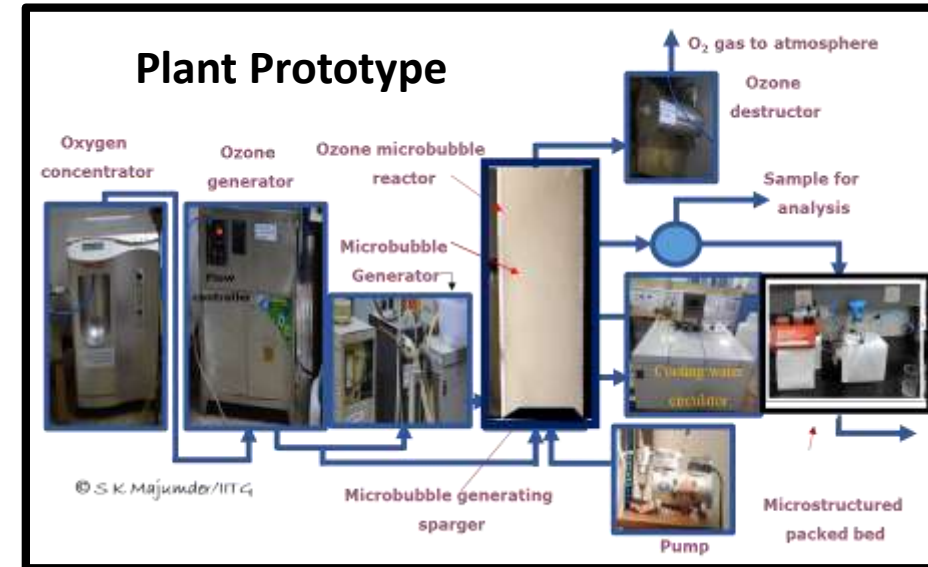


# Removal of Pharmaceutical Derivatives Present in Wastewater by Advanced Oxidation Integrating with Microstructure Packed Bed of Grapheme(G)/Graphene Oxide (GO)/Go-Metal Nanocomposites – Funded by DST (Ref.: DST/TM/WTI/2K16/20(C)-A )

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## Objectives and Deliverable Theme:

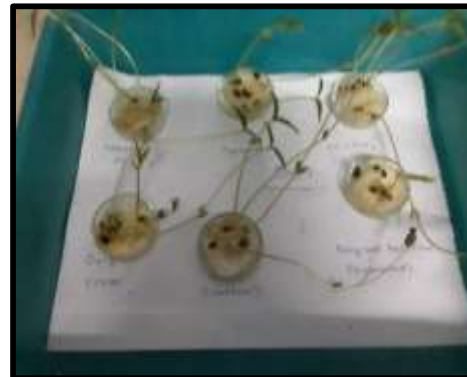
- ❖ Major technical knowhows have been developed on wastewater treatment method.
- ❖ Ozonation technique has been amalgamated with the graphene oxide coated microstructure packed bed-based separation technique so that advantage of both the techniques are obtained in a single process.
- ❖ The kinetics of oxidation (Ozonation) of pharmaceuticals (Neproxin (NPX), carbamazepine (CBZ), ibuprofen (IBP), Methylothiazolone (MIT), Ranitidine (RND)) with ozone microbubble
- ❖ Mass transfer characteristics of ozonation of the pharmaceutical drugs and its modeling of distribution of concentration in the reactor based on the overall mass transfer coefficient.
- ❖ Treatment of real pharmaceutical industrial effluent by a hybrid process of advanced oxidation and adsorption in microstructured adsorber by adsorbent



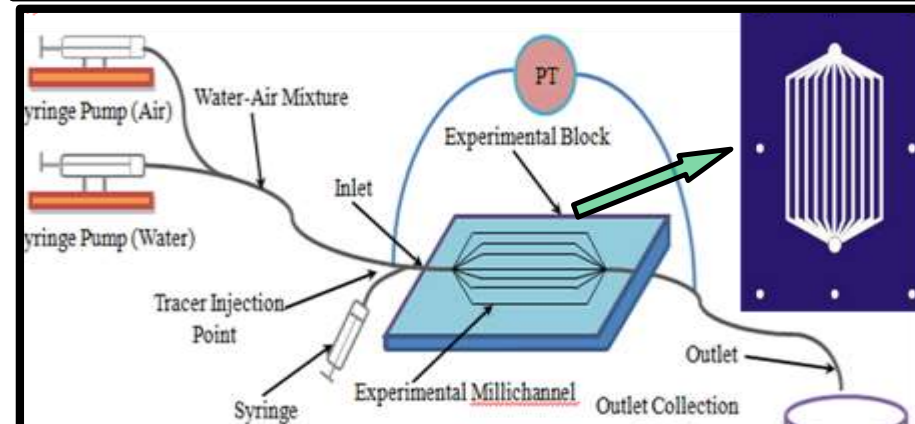
Metal nanocomposite



Ozone micronanobubble



Waste Toxicity Test



Microstructured packed bed