# 3D Porous dimensionally stable anode–integrated particulate electrode-electrochemical filtering system for advanced treatment of cytostatics-containing water (3DSAPECYT)

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The development of improved innovative technology and process for water treatment represents a prerequisite condition within the context of the circular economy, considering its fundamental principles focus on reduce, reuse and recycle in order to close the loops of the water use cycle.

**Objectives** of the project consists of:

**1.** Synthesis and characterization of new porous dimensionally stable anodes through spin coating and hydrothermal techniques.

**2.** Development of new filtering composition within fluidized bed as particulate electrode based on activated carbon (mature technology) / Romanian zeolite (natural material) / manganese sand (depleted filtering waste generated in the drinking water treatment technology using manganese containing groundwater source).

**3.** Fabrication of an innovative ***three-dimensional (3D) Porous Dimensionally Stable Anode–integrated Particulate Electrode-Electrochemical Filtering System (3D-PDSA-PE-EFS)*** for advanced treatment of cytostatics containing water.

**4.** Validation and integration of ***3D-PDSA-PE-EFS*** system within advanced surface water treatment technology.

The ***scope*** of the present project is to develop an innovative three-dimensional (3D) Porous Dimensionally Stable Anode–integrated Particulate Electrode-Electrochemical Filtering System (***3D-PDSA-PE-EFS***) for advanced water treatment, which will be validated at the lab-scale for advanced treatment of cytostatics containing water, starting from ***TRL-2*** and reaching ***TRL-4*** in 24 months. The system (***3D-PDSA-PE-EFS***) will be flexible and enable for an advanced treatment of water/wastewater characterized by a wide range of contaminants (organics and inorganics) by combination of advanced electrooxidation process (AEOP) with adsorption/catalysis (A/C) process within one reactor.

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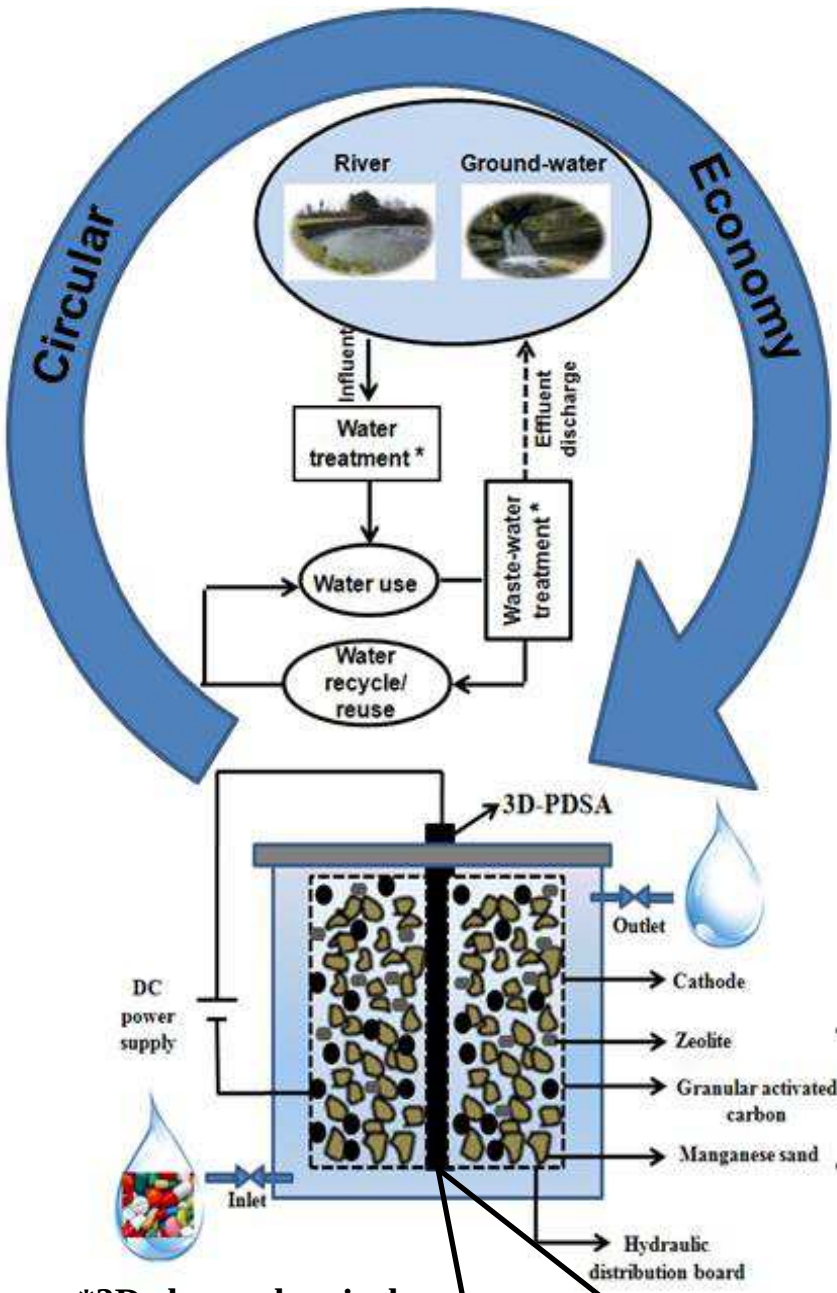
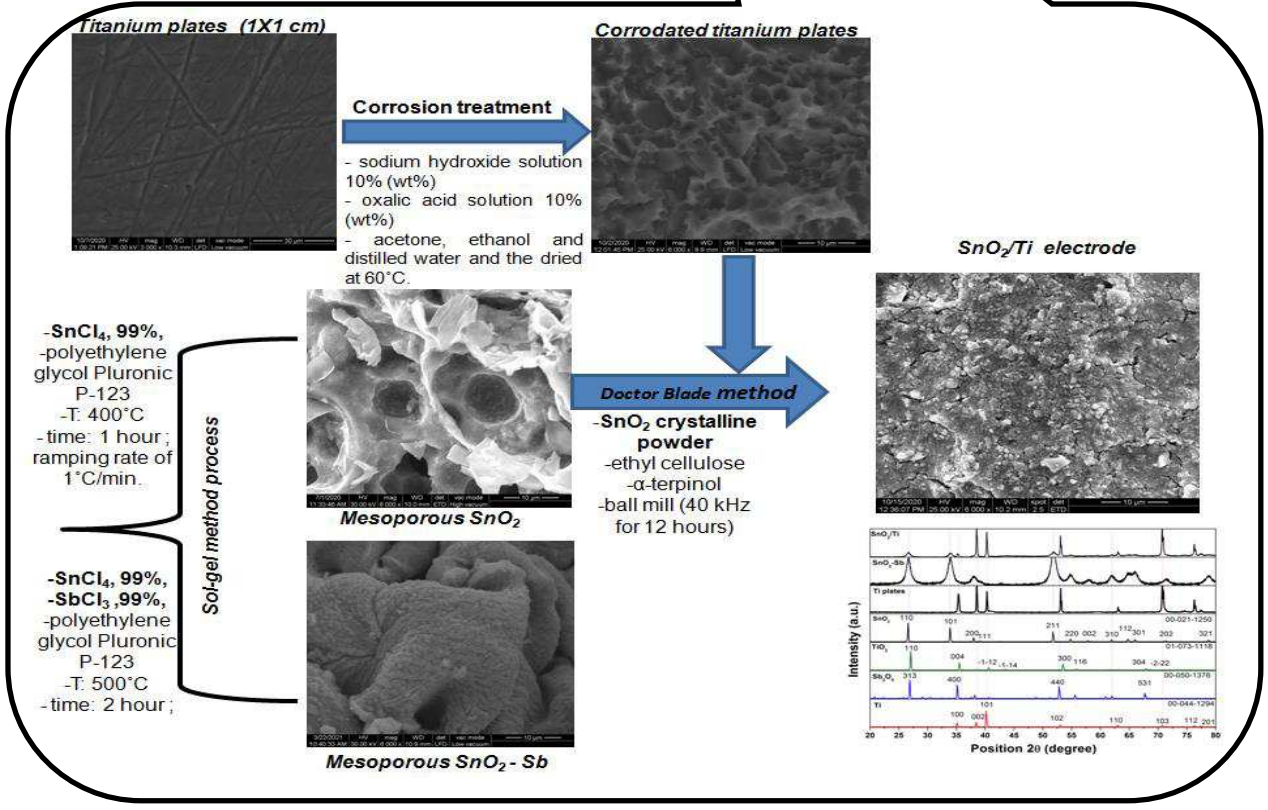



***3D electrochemical filtering system**




***Morpho-structural characterization of 3D-PDSA***