

Green Synthesis of carbon Quantum dots for Geoenvironmental Applications

Efthimiadou Alexandra^a, Mitsopoulou Kristina^{a,*}

^aInorganic Chemistry Laboratory, Department of Chemistry, National and Kapodistrian University of Athens, Panepistimiopolis, Zografou, 157 71, Greece

e-mail: alicefthym@chem.uoa.gr

The purpose of this work is the synthesis of economic and environmentally friendly nanoparticles from cotton waste, through probiotic microorganisms, which will be used in agriculture and environment. In particular, carbon quantum dots (CQDs) exhibit important optical and electrochemical properties, such as high fluorescent quantum yield, excellent biocompatibility, low-toxicity, and aqueous solubility for improving crop yields and restoring problematic soils. The transmission electron microscopy (TEM) confirms the morphological characteristics and dynamic light scattering results confirmed the hydrodynamic diameter (d_H , DLS) as well as the colloidal stability of the CQDs. [1] FT-IR, fluorescence and UV-analysis confirmed the properties and the existence of functional groups and the nature [2].

References:

1. Gahlawat G, Choudhury AR. RSC Adv. 2019;9(23):12944–67.
2. Wen X., Shi L., Wen G., Li Yanyan, Dong C., Yang L., Shuang S., Sensors and Actuators B 221 (2015) 769–776.