

Seminars in Biotechnology BTEC 591 & BTEC 691

“Applications of Carbon Dots in Nanobiotechnology”

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13:30

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I graduated from the University of Hacettepe with a bachelor's degree in food engineering in 1995. After worked at cookie and chocolate factories in Karaman, I completed my MSc thesis at Food Engineering Department in 2001 and my PhD thesis at Bioengineering Department in Hacettepe University in 2012. Currently, I am working at Çumra School of Applied Sciences, Selçuk University since 2011. I gained an Associated Professor degree in the field of Bioengineering in 2020. My research interests mainly are the green synthesis and applications of carbon dots and chromatography (HPLC, GC-MS). Until now, I worked on three projects funded by TUBITAK (1001-1512) and two international projects (FP7 and TOI). I earned a scholarship in 2020 funded by TUBITAK (2219) with the project on biosensor development.

Abstract

Since their discovery accidentally¹, carbon dots, fluorescent nanoparticles with diameters smaller than 10 nm have drawn great attraction because of outstanding properties including low toxicity / non-toxicity, biocompatibility, synthesizing by green, easy and cheap methods, water solubility and photostability, compared to traditional quantum dots^{2,3}. Up to now, carbon dots have been utilized in biosensors, bioimaging, drug delivery, wound dressing, solar cell, LEDs, fluorescent ink, fertilizer and photocatalysis applications⁴. Their novel applications such as corrosion inhibitor⁵, and food protective agent⁶ are still emerging. Top-down and bottom up approaches are fundamentally used to synthesize carbon dots⁷ as well as they are extracted from natural sources including heated food/ waste² etc. This talk will present an overview of carbon dots; synthesis, characterization, purification and applications of carbon dots in nanobiotechnology.

References:

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