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SYNTHESIS OF FLUORESCENT CARBON DOTS FROM AGRO WASTES

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Abstract:

Photoluminescent carbon dots have attracted growing interest in recent years due to their great potential in chemical sensing, biosensing, bioimaging, nanomedicine, photocatalysis and electrocatalysis. Luminescent semiconductor quantum dots which are known for their toxicity and potential environmental hazards due to the presence of heavy metals are replaced by Carbon based photoluminescent nanomaterials which are environmentally and biologically compatible with low toxicity, low cost and simple synthetic routes. Thus, water soluble and fluorescent C-dots were prepared from low cost agricultural wastes such as coconut coir and cassava peels, through low temperature carbonization process. The prepared C-dots possessed small particle size. The synthesized C-dots were characterized with the help of analytical techniques such as DLS, UV-Visible, FT-IR and Fluorescence instruments. These results suggest that abundant low cost agricultural wastes (coconut coir and cassava peels) are useful sources for the synthesis of C-dots with applications.

Keywords: Carbon-dots; Coconut coir; Cassava peel; Fluorescence.

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