Patent Search

Invention Title	PRODUCTION OF HIGHLY STABLE AND EFFICIENT EXCITATION DEPENDENT LUMINESCENT GRAPHENE QUANTUM DOTS FROM BOUGAI GLABRA
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Inventor

Name	Address	Country
PANDIYARAJAN T	Department of Sciences,Indian Institute of Information Technology Design and Manufacturing Kurnool, Jagannathagattu, Dinnedevarapadu, Kurnool, Andhra Pradesh-518 008, INDIA.	India
MUHAMMAD PANACHIKKOOL	Department of Sciences,Indian Institute of Information Technology Design and Manufacturing Kurnool, Jagannathagattu, Dinnedevarapadu, Kurnool, Andhra Pradesh-518 008, INDIA.	India

Applicant

Name	Address	Country
PANDIYARAJAN T	Department of Sciences,Indian Institute of Information Technology Design and Manufacturing Kurnool, Jagannathagattu, Dinnedevarapadu, Kurnool, Andhra Pradesh-518 008, INDIA.	India
MUHAMMAD PANACHIKKOOL	Department of Sciences,Indian Institute of Information Technology Design and Manufacturing Kurnool, Jagannathagattu, Dinnedevarapadu, Kurnool, Andhra Pradesh-518 008, INDIA.	India

Abstract:

ABSTRACT PRODUCTION OF HIGHLY STABLE AND EFFICIENT EXCITATION DEPENDENT LUMINESCENT GRAPHENE QUANTUM DOTS FROM BOUGAINVILLEA GLABRA Th discloses method of production of highly stable and efficient excitation dependent luminescent graphene quantum dots from Bougainvillea glabra flower, the metho of washing Bougainvillea Glabra (BG) flower with bract and cutting into small pieces; mixing pieces of BG flower with bract along with distilled water and boiling for 3(obtain BG extract of pink color; cooling the BG extract to room temperature; preparing a plurality of samples of the BG extract; and irradiating the plurality of sample extract using a scientific microwave synthesizer. The synthesized GQDs are highly stable. The optical, vibrational, and structural studies reveal further confirmation of synthesized GQDs having defects and several functional groups attached to both edges and in between the rings which will give rise to the excitation dependent lumi The produced GQDs will be a potential candidate for photovoltaic and optical applications. Figure 1 shall be reference figure.

Complete Specification

Description:PRODUCTION OF HIGHLY STABLE AND EFFICIENT EXCITATION DEPENDENT LUMINESCENT GRAPHENE QUANTUM DOTS FROM BOUGAINVILLEA GLABRA
TECHNICAL FIELD
[0001] The present disclosure relates to production of highly stable graphene quantum dots from natural resources, in particular, it relates to production of highly and efficient excitation dependent luminescent graphene quantum dots from Bougainvillea glabra flower.

BACKGROUND
[0002] Graphene offers outstanding physio-chemical properties such as highly transparent (97.7%), electrical conductivity (550 S/cm), high mechanical strength, a better flexibility due to its one-dimensional confinement effect. Graphene quantum dots (GQDs) are three-dimensionally confined, zero-dimensional carbonous ma with exceptional physical and chemical properties such as a tuneable band gap, good conductivity, solubility in polar solvents, quantum confinement effect, and edg effect. The GQDs are identified as one of the potential candidates for improving solar cell performance, LEDs, sensors, hydrogen fuel generation, and Bio-imaging.
[0003] In general, the GQDs are synthesized by two methods namely, bottom-up and top-down approaches. There are various carbon precursor materials are use include graphite, coal, carbon nanotubes, and graphene oxide. In addition, various natural resources are utilized as a carbon sources including vegetables, flowers, leaves to produce GQDs [W. Chen, et al, Green Chem., 2018, DOI:10.1039/C8GC02106F; Prathik Roy et al. New J. Chem., 2014,38, 4946-4951, https://doi.org/10.1039/C4NJ01185F]. The paper flower or Bougainvillea is a plant with plenty of various species having phytochemical, pharmacological, and toxicol applications. The Bougainvillea flower has a leaf-like structure called a 'bract' having different varieties of colors due to its pigments. These are used as a natural dye

View Application Status

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