

# **South African Patent**

## **Photocatalytic Degradation of Drug Amoxicillin and Dye Sulphon Fast Black-F by Cu:ZnS**

### **Quantum Dot**

#### **FIELD OF THE INVENTION**

The present invention relates to a field of quantum dots. More particularly, the present invention relates to a Photocatalytic Degradation of Drug Amoxicillin and Dye Sulphon Fast Black-F by Cu:ZnS Quantum Dot.

#### **Abstract**

A formulation and a method for preparation of zinc sulphide (ZnS) and copper (Cu) doped ZnS (Cu : ZnS) quantum dots (QDs), comprising:

synthesizing 40-55ml of zinc acetate (102), with 0.1-0.10 M of sodium sulphide (106) for the QDs; mixing 20-30 ml of 0.005-0.05 M of copper sulphate (104) with 40-55ml of zinc acetate (102); mixing 1.0 At.wt% of cetyl pyridinium chloride (108) with drop-wise addition of 0.1-0.10 M of sodium sulphide (106) solution to prepare a solution; obtaining a precipitate from the solution by stirring continuously for 12-15 minutes; subjecting the obtained precipitate to a reflux at 60-80°C and centrifuged for a defined period; and filtering the subjected precipitate, wherein washing the filtered precipitate to remove impurities and drying to obtain the QDs powder.



REPUBLIC OF SOUTH AFRICA

REPUBLIEK VAN SUID AFRIKA

PATENTS ACT, 1978

## CERTIFICATE

In accordance with section 44 (1) of the Patents Act, No. 57 of 1978, it is hereby certified that:

**SINGH, AJAYA KUMAR; PATEL, JYOTI; JAIN, BHAWANA; ASTHANA, ANUPAMA;  
MATHEW, SUNITHA B.; HASHMI, AYESHA**

Has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

**2021/10082**

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect from the **29<sup>th</sup> day of June 2022**

  
.....  
**Registrar of Patents**

