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COMMUNICATION

Facile additive-free solvothermal synthesis of cadmium sulfide flower-like three dimensional assemblies with unique optical properties and photocatalytic activity

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Cadmium sulfide flower-like 3D assemblies were successfully prepared through a facile additive-free solvothermal process. It was found that the ethanol played an important role in the formation of the CdS assemblies. Based on the time-dependent experiments, a possible mechanism was proposed. In addition, the CdS assemblies exhibit unique optical properties and potential photocatalytic activity.

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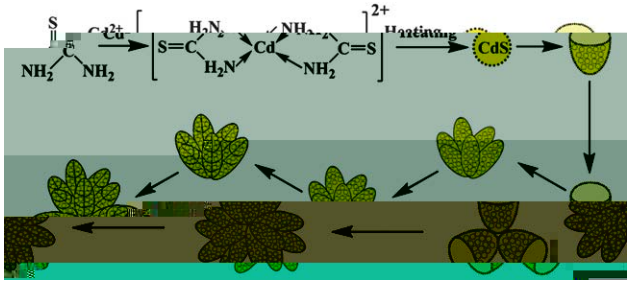
(F . 3). 6 ,
ý
. -
ý - C w 6 .
F , , *e.g.*
ý
ý w 3D . F , 3D
C w ý ý
, [16] 3D C ý w w -
w ý
. [17] I ý, ý, ý
C w - 3D
. I
- 3D w - , ý
ý C w -
3D . w ý ý
, , . [18–21] ,
ý C ý
w .
w w w ,
C w - 3D .
B , C
w - 3D 1. F ý, C $^{2+}$
(C -)
ý .
,
C - ý ý
C $^{2+}$ $^{2-}$. C $^{2+}$ w $^{2-}$
C . [22,23]
ý ý ý C
ý, w w
ý w
w- . C w- .
. ý, -
, w- C -
w ý
. w-
w - .
A II I -
, C
ý



Scheme 1 C w - 3D .

. , C w - 3D
, - , w
w F . 4. F F . 4,
- C 3D w
245 , ý. I ,
w w 245 , - C 3D
305 ,
w [24,25]
B ý
- C , ý ý
ý w
w F . 5. F , w
90 - C , 88% 79%
B ý (E I, F . 2 3
B). B
w - C ,
C ý ý
. w
ý C
w - ý ý
(• H, $_2^-$, *etc.*), w [26]
ý . - C w -
ý ý ý
ý ý
ý w w .
I , C w - 3D w ý
ý *via* w ý
. I
C w - 3D
. F , w
C w - 3D
. B , w
C ý . ý
, , - -
C 3D -/
ý I ý w ,
, ý- ý . F ,
- C 3D
ý ý ý

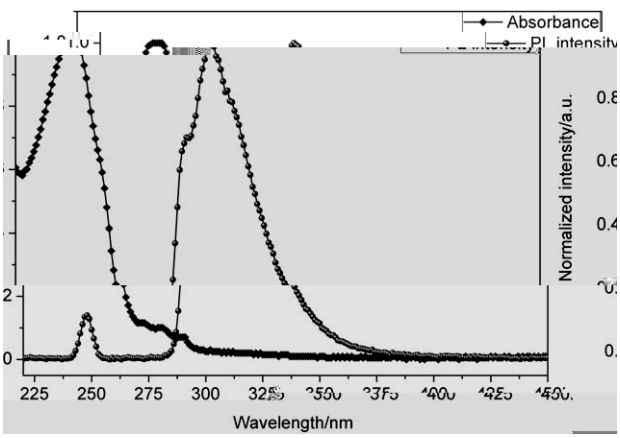


Fig. 4 - C w - 3D .

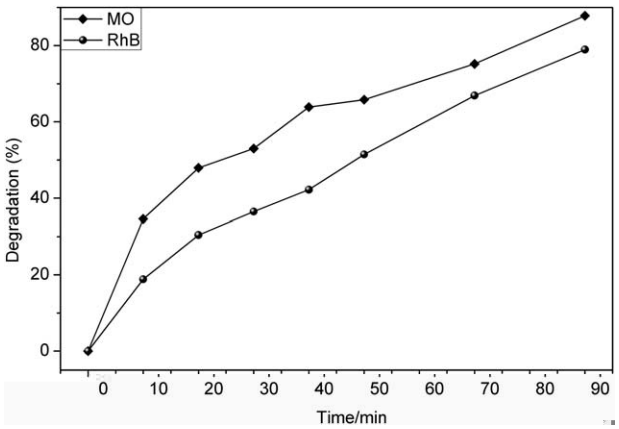


Fig. 5 B - C w - 3D ỳ - .

ỳ ỳ ỳ ỳ w w .
w w ỳ ỳ ỳ B ỳ ỳ D C (
. 2009CB626610) ỳ ỳ F C (
. 20771036) I ỳ ỳ ỳ C ỳ ỳ H ỳ ỳ ỳ F H ' E ỳ C (
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