



Ain Shams University
Faculty of Science
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Synthesis, characterization and applications of some nanometal oxides

A Thesis Submitted in Partial Fulfillment of the
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(Ph.D.) in Science "Chemistry"

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To

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Abbreviations

Å	Angstrom
b	blank sample (dye + catalyst in absence of light)
BET	Brunauer-Emmett-Teller
°C	Centigrade Degree
CB	Conduction Band
CR	Congo Red
DMSO	Dimethyl Sulfoxide
e⁻	electron
ev	electron volt
FTIR	Fourier Transformed InfraRed
GHz	Gigahertz
G⁺	Gram positive
G⁻	Gram negative
h	hour(s)
h⁺	hole
HPC	Hydroxy Propyl Cellulose
H1	CeO ₂ nanoparticles prepared in the presence of 10% Tween 20 by hydrothermal technique

H2	CeO ₂ nanoparticles prepared in the presence of 5% Tween 20 by hydrothermal technique
H3	CeO ₂ nanoparticles prepared in the presence of 2.5% Tween 20 by hydrothermal technique
H4	CeO ₂ nanoparticles prepared in the presence of 10% Tween 80 by hydrothermal technique
H5	CeO ₂ nanoparticles prepared in the presence of 5% Tween 80 by hydrothermal technique
H6	CeO ₂ nanoparticles prepared in the presence of 2.5% Tween 80 by hydrothermal technique
KV	Kilovolt
M	Molarity
Mb	Methylene blue
min.	Minutes
mm	millimeter
mmol	millimoles
MOs	Metal Oxides
NCs	Nanocrystals
nm	Nanometer
No.	Number
NPs	Nanoparticles
ppt	Precipitate

SEM	Scanning Electron Microscopy
TEM	Transmission Electron Microscopy
T1	CeO ₂ nanoparticles prepared in the presence of 10% Tween 20 by wet chemical method
T2	CeO ₂ nanoparticles prepared in the presence of 5% Tween 20 by wet chemical method
T3	CeO ₂ nanoparticles prepared in the presence of 2.5% Tween 20 by wet chemical method
T4	CeO ₂ nanoparticles prepared in the presence of 10% Tween 80 by wet chemical method
T5	CeO ₂ nanoparticles prepared in the presence of 5% Tween 80 by wet chemical method
T6	CeO ₂ nanoparticles prepared in the presence of 2.5% Tween 80 by wet chemical method
UV	Ultraviolet
VB	Valence Band
Vis	Visible
W	Watt
Wt/v	Weight per volume
XRD	X-Ray Diffraction

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