

## DECLARATION BY THE SCHOLAR

I hereby declare that the work reported in the Ph.D. thesis entitled “**Development of Metallic Nano-systems (Gold and Silver) for Anti-microbial and Sensing Applications**” submitted at **Jaypee University of Information Technology, Waknaghat, Solan, Himachal Pradesh, India** is an authentic record of my work carried out under the supervision of **Dr. Abhishek Chaudhary**. I have not submitted this work elsewhere for any other degree or diploma. I am fully responsible for the contents of my Ph.D. thesis.



Mr. Deepak Sharma

Enrollment No. 166555

Department of Biotechnology and Bioinformatics

Jaypee University of Information Technology

Waknaghat, Solan, H.P. India-173234

Date: 17/01/23

## SUPERVISOR'S CERTIFICATE

This is to certify that the work reported in the Ph.D. thesis entitled "**Development of Metallic Nano-systems (Gold and Silver) for Anti-microbial and Sensing Applications**", submitted by **Mr. Deepak Sharma** at **Jaypee University of Information Technology, Wagnaghat, Solan (HP) India**, is a bonafide record of his original work carried out under my supervision. This work has not been submitted elsewhere for any other degree or diploma.



Supervisor:

Date: 17/01/23

**Dr. Abhishek Chaudhary**

Assistant Professor

Department of Biotechnology & Bioinformatics

Jaypee University of Information Technology

Wagnaghat, Solan, Himachal Pradesh-173234, India

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## LIST OF UNITS, SYMBOLS & ABBREVIATIONS

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°C	Degree Celsius
%	Percentage
g	Grams
h	Hours
μg	Microgram
μM	Micromolar
mg	Milligrams
ml	Milliliter
mM	Millimolar
min	Minutes
M	Molarity
nm	Nanometer
nM	Nanomolar
N	Normality
CuNPs	Copper nanoparticles
DLS	Dynamic light scattering
G-AuNPs	Gentamicin conjugated gold nanoparticles
AuNPs	Gold nanoparticles
FTIR	Fourier-transform infrared spectroscopy
O.D.	Optical density
M-NPs	Metal nanoparticles
MIC	Minimum inhibitory concentration
Pt-NPs	Platinum nanoparticles
PI	Propidium iodide
Q-AgNPs	Quercetin functionalized silver nanoparticles

rpm	Revolutions per minute
SEM	Scanning electron microscopy
SPR	Surface plasmon resonance
TEM	Transmission electron microscopy
UV-vis	Ultraviolet-visible spectroscopy
XRD	X-ray diffraction
ZnO	Zinc oxide nanoparticles

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