

**Biological Synthesis of Silver and Gold and
Their Bimetallic Nanoparticles: Application
in Antimicrobial Activity
and Cytotoxicity**

Presented by

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A Thesis Submitted

To

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**In Partial Fulfillment of the Requirements for
The Degree of Doctor of Philosophy of Science**

(Inorganic Chemistry)

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا انك لا تعلم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

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List of Contents

<i>Subject</i>	<i>Page No.</i>
ACKNOWLEDGMENTS	
CONTENTS	
LIST OF ABBREVIATIONS	i
LIST OF TABLES	ii
LIST OF FIGURES.....	iii
ABSTRACT	x
SUMMARY	xi
 CHAPTER I. INTRODUCTION AND REVIEW OF LITERATURE	
1.1 Definition of Nanotechnology	1
1.2 A brief history of nanoparticles	2
1.3 Properties of nanoparticles.....	5
1.4 Basic features of nanoparticles	7
1.4.1 Nanoparticles and surface effects	7
1.4.2 Size effects	9
1.5 Metallic nanoparticles.....	10
1.6 Stabilization of metal nanoparticles.....	11
1.7 Silver nanoparticles.....	12
1.8 Gold nanoparticles	15
1.9 Physical properties of nano materials	20
1.10 Bimetallic nanoparticles	20
1.11 Silver-gold bimetallic nanoparticles.	22
1.12 General synthetic routes of metallic nanoparticles.	26
1.13 Methods for synthesise of metallicNanoparticles	29
1.13.1 Physical methods	31
1.13.2 Chemical methods.....	32

1.13.3 Biological methods	33
1.13.3.1 Nanoparticle Synthesis by Plants	34
1.13.3.1.1 Synthesis of silver nanoparticles using plant extracts.	42
1.13.3.1.2 Synthesis of gold nanoparticles using plant extracts.	47
1.13.3.1.3 Synthesis of Silver-gold bimetallic nanoparticles using plant extracts.	53
1.14 Mechanisms of Biosynthesis of Nanoparticles using plant extracts	55
1.15 Antioxidant compounds in Gmelina leaves	57
1.16 Antioxidant compounds in Teak (Tectona grandis) leaves	62
AIM OF THE WORK	68
 CHAPTER II: MATERIALS AND METHODS	
2.1 Material	69
2.2 Analytical instruments	69
2.2.1 UV–visible spectral analysis	69
2.2.2 Transmission electron microscopy (TEM)	70
2.2.3 X-Ray Diffraction	70
2.2.4 Fourier transform infrared spectroscopy	71
2.2.5 Thermogravimetric analysis	72
2.2.6 Dynamic Light Scattering (DLS)	72
2.3 Preparation of the extract	73
2.4 Synthesis of gold nanoparticles	73
2.5 Synthesis of silver nanoparticles	73
2.6 Synthesis of AuAg bimetallic nanoparticles	74
2.7 Cytotoxicity evaluation	74

2.8 Preparation of silver, gold and their bimetallic nanoparticles for antimicrobial assay.....	75
2.8.1 Preparation of Nps using Gmelina leaves extract.....	75
2.8.2 Preparation of Nps using Teak extract.....	76
2.9 Antimicrobial activity assay	77

CHAPTER III: GREEN SYNTHESIS OF SILVER, GOLD AND CORE-SHELL SILVER-GOLD NANOPARTICLES USING GMELINA LEAF EXTRACT

Introduction	78
3.1 UV–visible spectroscopy and TEM Studies	79
3.1.1 Effect of concentration of Gmelina leaves extract	79
3.1.2 Effect of contact time	86
3.1.3. Effect of pH.....	89
3.1.4 Effect of temperature.....	94
3.2. X-Ray diffraction study.....	96
3.3 Fourier transform infra-red spectroscopy (FTIR)	98
3.4 Thermal gravimetric analysis (TGA).....	99
3.5 Dynamic light scattering (DLS)	101
3.6 The proposed mechanism of synthesis	105
3.7 Cytotoxicity Activity.....	107
3.8 Antimicrobial assay	111

CHAPTER IV: GREEN SYNTHESIS OF SILVER, GOLD AND SILVER-GOLD NANOPARTICLES USING TEAK LEAF EXTRACT

Introduction	116
4.1 UV–visible spectroscopy and TEM Studies	117
4.1.1 Effect of concentration of Teak leaves extract.....	117
4.1.2 Effect of contact time	125

4.1.3. Effect of pH	130
4.1.4 Effect of temperature.....	135
4.2 X-Ray diffraction study.....	138
4.3 Fourier transform infra-red spectroscopy (FTIR)	140
4.4 Thermal gravimetric analysis (TGA)	142
4.5 Dynamic light scattering (DLS)	144
4.6 Cytotoxicity Activity.....	148
4.7 Antimicrobial assay.....	152
REFERENCES	156
ARABIC SUMMARY	—

List of Abbreviations

<i>Abbr.</i>	<i>Full-term</i>
AgAuNPs	: Silver-Gold bi-metallic nanoparticles
AgNPs	: Silver nanoparticles
AuNPs	: Gold nanoparticles
DLS	: Dynamic Light Scattering
FTIR	: Fourier transform infra-red spectroscopy
FT-IR	: Fourier Transform Infrared
FWHM	: Full width at half maximum
FWHM	: Full width at half maximum
HePG2	: Hepatocellular carcinoma
ROXB	: Gmelina arborea
SPR	: Surface plasmon resonance
TEAK	: Tectona grandis
TEM	: Transmission electron microscopy
TGA	: Thermo gravimetric analysis

List of Tables

<i>Table No.</i>	<i>Title</i>	<i>Page No.</i>
Table (1.1):	Several physical and chemical methods have been used for synthesizing and stabilizing silver NPs.....	14
Table (1.2):	Some advantages and disadvantages of silver and gold nanoparticles.....	25
Table (1.3):	Synthesis of gold nanoparticles by plant extracts.....	49
Table (1.4):	Major compounds identified in the essential oil of Gmelina leaf.....	62
Table (1.5):	Result of phytochemical screening of Teak plants	64
Table (1.6):	Details of secondary metabolite constituents of T. grandis.	65
Table (3.1):	Cytotoxicity (IC ₅₀) of aqueous extract of Gmelina and the nanoparticles.....	111
Table (3.2):	Antimicrobial activities of different concentrations of Gmelina leaf extract and AuNPs, AgNPs, and AuAgNPs solutions.....	114
Table (4.1):	Cytotoxicity (IC ₅₀) of aqueous extract of Teak and the nanoparticles.....	152
Table (4.2):	Antimicrobial activities of different concentrations of Teak leaf extract and AuNPs, AgNPs, and AuAgNPs solutions.....	154

List of Figures

<i>Figure No.</i>	<i>Title</i>	<i>Page No.</i>
Figure (1.1):	Some nanometer objects in living system.	2
Figure (1.2):	(a) Photograph of a medieval piece of a glazed ceramic observed by scattered light and specular reflection. (b) TEM image of the double layer of silver nanoparticles. (c) Schematic representation of interference phenomena due to the double layer.	4
Figure (1.3):	The Lycurgus Cup in reflected (left) and in transmitted (right) light. Trustees of the British Museum.	5
Figure (1.4):	Classification of metallic nanomaterials	10
Figure (1.5):	(a) Electrostatic stabilization of nanostructured metal colloids, (b) Steric stabilization of nanostructured metal colloids.	11
Figure (1.6):	Nanoparticles in comparison with other biological entities.	17
Figure (1.7):	Various shapes of gold nanoparticles.	19
Figure (1.8):	Cross section schematic representation of some possible patterns for different element arrangements of bimetallic nanoparticles: core-shell (a); sub-cluster segregated or simple phase separated (b); ordered and random mixed (c); three-shell onion-like (d).	22
Figure (1.9):	Recent applications for Au and Ag nanomaterials.	25

Figure (1.10):	Schematic diagram of gold nanoparticle growth.....	27
Figure (1.11):	Formation of nanostructured metal colloids via the Fenki mechanism.....	28
Figure (1.12):	Schematic representation of Bottom–up and Top–down technique.	30
Figure (1.13):	Various approaches for making nanoparticles and cofactor dependent bioreduction.....	30
Figure (1.14):	Schematic illustration of preparative methods of metal nanoparticles.....	31
Figure (1.15):	Schematic representation of a proposed mechanism of plant-mediated synthesis of metal nanoparticles.....	37
Figure (1.16):	Various types of plants used for the synthesis of metal nanoparticles.....	48
Figure (1.17):	Reducing and stabilizing agents in plant phytochemicals that used for the synthesis of metal nanoparticles.	56
Figure (1.18):	Gmelina leaves	59
Figure (1.19):	Teak Leaves.....	63
Figure (1.20):	Phenolic compounds (1-4) and lignans (8-12) of <i>T. grandis</i> Linn.	66
Figure (1.21):	The isolation of four phenolic compounds named TG1, TG2, TG3 and TG4	67
Figure (3.1):	(a) The color change of gold solution formed using different concentrations of plant extract, (b) Uv-vis spectra of gold nanoparticles using constant HAuCl_4 concentration $2.9 \times 10^{-4} \text{M}$ with different concentrations of extract from 0.2 to 3 ml.	81

Figure (3.2):	(a) The color change of silver solution formed using different concentrations of Gmelina extract, (b) UV-vis spectra of silver nanoparticles using constant AgNO_3 concentration ($1 \times 10^{-4} \text{M}$) with different concentrations of extract from 0.2 to 1.5 ml.	83
Figure (3.3):	UV-visible spectra of AgAu bimetallic nanoparticles using 2.5 ml of plant extract (4%) and (0.5 ml) of silver nitrate ($1 \times 10^{-2} \text{M}$) and after 24hrs (0.05) ml of HAuCl_4 ($2.9 \times 10^{-4} \text{M}$) was added at room temperature.....	84
Figure (3.4):	TEM images of (a) AuNPs; (b) AgNPs and (c) AgAuNPs nanoparticles.	86
Figure (3.5):	UV-visible spectra of Au nanoparticles formed as a function of contact time ($\text{Au}^{3+} = 2.9 \times 10^{-4} \text{M}$, ml extract).....	87
Figure (3.6):	UV-visible spectra of Ag NPs formed as a function of time ($[\text{Ag}^+] = 5 \times 10^{-4} \text{M}$, extract = 2.5 mL (4%)	88
Figure (3.7):	UV-visible spectra of Ag(Au) core-shell NPs formed as a function of time. 2.5 ml of plant extract (4%) and (0.5 ml) of silver nitrate ($1 \times 10^{-2} \text{M}$) and after 24hrs (0.05) ml of HAuCl_4 ($2.9 \times 10^{-4} \text{M}$) was added at room temperature.....	89
Figure (3.8):	Effect of Gmelina extract solution pH on the formation of AuNPs	90
Figure (3.9):	Effect of Gmelina extract solution pH on the formation of AgNPs	91
Figure (3.10):	Effect of Gmelina extract solution pH on the formation of Au (Au) core-shell NPs.....	92
Figure (3.11):	TEM images of (a) AuNPs at pH 4.5 (b) AuNPs at pH 9.....	93

Figure (3.12): TEM images of (a) AgNPs at pH 4.5 (b) AgNPs at pH 9	94
Figure (3.13): TEM images of (a) AuAgNPs at pH 4.2 (b) AuAg NPs at pH 9.....	94
Figure (3.14): UV–vis spectra of AuNPs as a function of temperature	95
Figure (3.15): UV–vis spectra of AgNPs as a function of temperature	95
Figure (3.16): UV–vis spectra of AuAgNPsas a function of temperature.....	96
Figure (3.17): X-Ray diffraction patterns of (a) AuNPs and (b) AgNPs (c) AuAgNPs prepared with aqueous <i>Gmelina</i> leaf extract.	97
Figure (3.18): FTIR spectra of (a) <i>Gmelina</i> leaf extract (b) gold nanoparticles (c) sliver nanoparticles (d) gold-silver nanoparticles.	99
Figure (3.19): TGA of (a) capped AuNPs (b) capped AgNPs, (c) AuAgNP using <i>Gmelina</i> leaf extract	101
Figure (3.20): The intensity and number distribution of AuNPs versus particle diameter in nm. The different of the same sample	103
Figure (3.21): The intensity and number distribution of AuNPs versus particle diameter in nm. The different of the same sample	104
Figure (3.22): The intensity and number distribution of AuNPs versus particle diameter in nm. The different of the same sample	105
Figure (3.23): Proposed mechanism for formation of bimetallic AuAg core-shell nanoparticles	107