

Chapter	Contents	Page No
	Chapter I	
I	1. Introduction	1
	1.1. Nano-The Beginning	1
	1.2. Metal Nanoparticles	2
	1.3. Nanoparticle	3
	1.4. Plant Derived Synthesis of Metal Nanoparticles	3
	Chapter II	
II	2.1. Flowchart for Green Synthesis	5
	2.2. Green Synthesis of Nanoparticles	6
	2.3. Synthesis of Metallic Nanoparticles	6
	2.4. Chemical Reduction Method	7
	2.5. Reduction by Citrate Anion	9
	2.6. Physical Method	9
	2.7. Biological Method	10
	Chapter III	
III	3. Characterization of Metallic Nanoparticles	12
	3.1. UV-Vis Spectroscopy	12
	3.2. X-ray Diffraction Study	12
	3.3. FT-IR Spectroscopy Analysis	13
	3.4. FE-SEM Analysis	13
	3.5. TEM Analysis	13
	3.6. SEM Analysis	15
	3.7. Absorbance Spectroscopy	15
	3.8. AFM	15
	3.9. EXAFS	16
	3.10. XPS	16

Chapter IV

IV	4.1. General Application of Metallic Nanoparticles	17
	4.2. Application of Metallic Nanoparticles and Optical Function	17
	4.3. Therapeutic Applications of Metallic Nanoparticles	19
	4.4. Application of Agriculture	23
	4.5. Nanoparticles Based Smart Delivery Systems	31
	4.6. Nanostructured Formulation Reduce Nutrients Loss into Soil by Leaching and/or Leaking	36
	4.7. Protein Polymer-Based Nanoparticles	41
	4.8. Other Proteins: Casein, Fibrinogen, Hemoglobin, Bovine Serum Albumin, Gluten	48
	4.9. Factors to Control Particle Formation	52

Chapter V

V	5. Novel Applications of Protein-Based Nanoparticles	55
	5.1. Bioimaging	55
	5.2. Drug Delivery Vehicle	56
	References	59