

Contents

- 1 Biogenic Nanoparticles: An Introduction to What They Are,
How They Are Synthesized and Their Applications 1**
Mahendra Rai, Aniket Gade, and Alka Yadav

Part I Synthesis and Fundamentals

- 2 An Insight into the Bacterial Biogenesis of Silver Nanoparticles,
Industrial Production and Scale-up 17**
Venkataraman Deepak, Kalimuthu Kalishwaralal, Sureshbabu
Ram Kumar Pandian, and Sangiliyandi Gurunathan
- 3 Biosynthesis of Gold Nanoparticles: A Review 37**
Maggy F. Lengke, Charoen Sanpawanitchakit, and Gordon Southam
- 4 A Bacterial Backbone: Magnetosomes in Magnetotactic Bacteria ... 75**
Christopher T. Lefèvre, Fernanda Abreu, Ulysses Lins,
and Dennis A. Bazylinski
- 5 Enzymatic Synthesis of Platinum Nanoparticles: Prokaryote
and Eukaryote Systems 103**
Chris Whiteley, Yageshni Govender, Tamsyn Riddin,
and Mahendra Rai
- 6 Biomolecules–Nanoparticles: Interaction in Nanoscale 135**
N. Vigneshwaran and Prateek Jain

Part II Synthesis and Process Development

- 7 Microbial Synthesis of Metal Nanoparticles 153**
Irena Maliszewska

8 Basic and Practical Procedures for Microbial Synthesis of Nanoparticles	177
Ahmad-Reza Shahverdi, Mojtaba Shakibaie, and Pardis Nazari	
9 Development of a Process Chain for Nanoparticles Production by Yeasts	197
Nikolay Krumov and Clemens Posten	
Part III Applications	
10 Applications of Gold Nanoparticles: Current Trends and Future Prospects	225
Zygmunt Sadowski and Irena H. Maliszewska	
11 Biogenic Silver Nanoparticles: Application in Medicines and Textiles and Their Health Implications	249
Priscyla D. Marcato and Nelson Durán	
12 Nanobiosensors and Their Applications	269
A. Reshetilov, P. Iliasov, T. Reshetilova, and Mahendra Rai	
13 Metallic Nanoparticles: Biological Perspective	285
Sunil K. Singh, Siddhartha Shrivastava, and Debabrata Dash	
Index	299