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Biotechnological Innovations in the Mineral-Metal Industry

Springer

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Preface

With the advent of technology, the demand for metals in increasing. Natural resources of metals are getting depleted, and there has been a huge concern to meet this ever-growing demand. To this aspect, the secondary resources, for example, the urban mines (basically referring to the electronic wastes), have been quite attractive to process for metal recovery. It is important to note that electronic wastes, for example, have been seen to contain an array of metals in a concentration higher than obtained from the primary resources (ores from mines). Over several decades, metallurgical strategies, e.g., pyrometallurgical and hydrometallurgical applications, have been significantly contributing to the supply of metals to meet the demand. However, the mining industry is increasingly facing to several challenges, for example, dumping of low-grade ores and/or drainage of acidic mine effluents are a matter of concern. Similarly, is the case while dumping or burning the end-of-life (EOL) electronic items. Therefore, processing of such ores and wastes has become highly essential in view of industrial waste management and meeting the circular economy guidelines.

It is quite encouraging to note that research has been progressing well to understand the fundamental as well as applied aspects of biotechnology to provide an economic and eco-friendly answer to such problems. It not only aims at looking forward to providing solutions for the environment but also focuses at providing value-added products that can be used in the mineral-metal industry or other industries/sectors where such metals or products can be used. This is the main source of inspiration behind coming up with a book devoted to providing the recent biotechnological innovations and applications related to the treatment of varied mineral-metal wastes. Herein, several key chapters are included that cover the main theme of the book. These chapters have been written by well-known experts in the field, and the contributions have been received from several parts of the globe. We thank them for such wonderful contributions. In addition, we are extremely thankful to our expert reviewers who have given their valuable time and feedback that allowed all the contributors to significantly improve their submissions. It has been a great collective effort, and we believe this book will provide the much-needed valuable information to all students/researchers working in the subject.

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Contents

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