Association of Metallurgical Engineers of Serbia
Faculty of Technology and Metallurgy, University of Belgrade
Institute for Technology of Nuclear and Other Mineral Raw Materials
Institute of Chemistry, Technology and Metallurgy
Vinca Institute of Nuclear Sciences
Serbian Foundrymen's Society

MME SEE 2019

Metallurgical & Materials Engineering Congress of South-East Europe

BOOK OF ABSTRACTS

June, 5th - 7th 2019, Belgrade, Serbia
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Branislav Marković
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PREFACE

The Fourth Metallurgical & Materials Engineering Congress of South-East Europe (MME SEE 2019) is a biannual meeting of scientists, professionals, and specialists working in the fields of metallurgical and materials engineering. The aim of the Congress is to present current research results related to processing/structure/property relationships, advances in processing, characterization, and applications of modern materials.

Congress encompasses a wide range of related topics and presents the current views from both academia and industry: Future of metals/materials industry in South-East European countries; Raw materials; New industrial achievements, developments and trends in metals/materials; Ferrous and nonferrous metals production; Metal forming, casting, refractories and powder metallurgy; New and advanced ceramics, polymers and composites; Characterization and structure of materials; Recycling and waste minimization; Corrosion, coating, and protection of materials; Process control and modeling; Nanotechnology; Sustainable development; Welding; Environmental protection; Education; Accreditation & certification.

The Editors hope that Congress will stimulate new ideas and improve the knowledge in the field of metallurgical and materials engineering.

The Congress is organized jointly by the Association of Metallurgical Engineers of Serbia, Faculty of Technology and Metallurgy, University of Belgrade, Institute for Technology of Nuclear and Other Mineral Raw Materials, Institute of Chemistry, Technology and Metallurgy, Vinca Institute of Nuclear Sciences and Serbian Foundrymen's Society.

The Editors would like to thank the Scientific and the Organizing Committee, the Congress Secretariat - CONGREXPO d.o.o. and all those who helped in making the Congress a success.

Special thanks are due to the Ministry of Education, Science and Technological Development of the Republic of Serbia and sponsors for the financial support of the Congress.

Editors

Content

REMOVAL OF Mn(II) IONS FROM SYNTHETIC SOLUTION USING ADSORBENTS BASED ON APRICOT AND PEACH SHELLS[16]

Tatjana Šoštarić[1], Zorica Lopičić, Marija Kojić, Marija Koprivica, Katarina Pantović Spajić, Dragana Ranđelović, Srđan Stanković

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Abstract: Manganese occurs naturally in surface and groundwater due to mineral dissolution and leaching process, but also as a result of human activities such as manganese ore mining and processing, different alloys and salts production. It is also used as a gasoline additive, a component in ceramic/glass manufacturing, some agrochemicals (fungicides and fertilizers). Manganese is an essential element for the functioning of many enzymes and can serve as an activator of many others, but manganese is not biodegradable, and its bioaccumulation in living organisms can cause many diseases and disorders. In the present study, the biosorption efficiency for the manganese ions from synthetic solution by raw and modified apricot and peach shells has been investigated. These lignocellulosic materials were obtained from local juice factory, where they have been discharged as the waste. Removal of manganese ions was investigated using the following biosorbents: raw apricot shells (KK) (particle size <0.65 mm), modified KK with mixture of 2% alginate and bentonite (KKAlB), raw peach shells (particle size <100 μm) modified by: 2% alginate (KBAl), 2 mol/L HNO_3 (KBM) and with the mixture of 10% $FeCl_3 \times 6H_2O$ and 0.1 mol/L KOH (KBFe). Experimental biosorption parameters were: initial concentration of manganese ions: 35 mg/L; m/V ratio: 5 g/L; contact time: 24h and initial pH value of the solutions: 4.5. The results have shown that KK is the most suitable and cost-effective biosorbent for the removal of manganese ions from aqueous solution. As apricot shells are widely available in the Republic of Serbia as food industry waste, application of this biosorbent can help in minimizing waste disposal and in water treatment at the same time.

Keywords: biosorption, manganese ions, lignocellulosic biomass, apricot, peach.

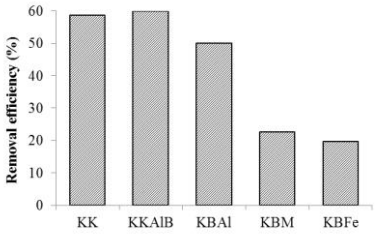

Figure 1. The removal efficiency of Mn(II) ions by different biosorbents

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