

9TH EDITION OF INTERNATIONAL CONFERENCE ON

CATALYSIS, CHEMICAL ENGINEERING AND TECHNOLOGY

October 21-22, 2021

Website: <https://catalysiscongress.com/>

Conference Presentations and Testimonials:
<https://www.youtube.com/c/MagnusGroupLLC/playlists>

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OCTOBER 21-22, 2021

Theme:

Exploring the advances and challenges in Catalysis and
Chemical Engineering

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About **MAGNUS GROUP**

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

About **Catalysis 2021**

Magnus Group with gratification and privilege announcing its "9th Edition of International Conference on Catalysis, Chemical Engineering and Technology (Catalysis 2021), an Online Event scheduled during October 21-22, 2021 with the theme "Exploring the advances and challenges in Catalysis and Chemical Engineering." The main aim of CATALYSIS 2021 is to provide interaction between Chemistry experts, Pharma industries, R&D department, Young Researchers, Ph.D. scholars, and other professionals in the areas of Catalysis and Chemical Engineering around the world to share about their research studies and new innovations in the field. You can increase your professional skills and discuss the practical challenges encountered and the solutions adopted.



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Efficient adsorption of lead ions from aqueous solution using Fe/Mg modified grape pomace hydrochar

Within this study, the potential application of grape pomace hydrochar as a potential adsorbent of lead ions from aqueous solutions will be investigated for the first time. For preparation of hydrochar, the grape pomace was hydrothermally carbonized in aqueous medium at 220 °C within 1 h. Obtained material was further modified with Mg and Fe salts in order to improve its adsorption properties. Preliminary adsorption results showed that the modified hydrochar exhibited significantly higher adsorption capacity (139.5 mg g⁻¹) compared to the unmodified one (27.8 mg g⁻¹). Further examination of the effects of different adsorption parameters (initial pH value and contact time) using modified and unmodified hydrochar, defined their optimum values for the most effective lead removal. The obtained results showed that the most efficient removal of lead ions occurs in solutions with pH 5. Furthermore, the examination of the influence of time on the adsorption process demonstrated that in the beginning the adsorption takes place quickly. The reason for this is the large number of available active centres on the hydrochar surface that can bind lead ions. However, as the number of these centres is occupied by a longer contact time, the binding rate decreases and after 240 minutes the equilibrium is reached. Kinetic models of pseudo-first and pseudo-second order were applied to the results of the influence of contact time. The kinetic study implied that the removal of lead ions on modified hydrochars follows pseudo-second order model. This model assumes a chemical interaction between lead ions and groups on the surface of hydrochar as the main binding mechanism. Based on the above it can be concluded that the hydrothermal carbonization is very efficient technology for conversion of waste biomass into highly valuable products. In order to examine in more detail the binding mechanism and the process of metal adsorption using modified hydrochars, additional analyzes will be part of our future research.

Audience Take Away:

- Hydrothermal carbonization as perspective process for waste agricultural residue, grape pomace, valorization.
- Examination of chemical modification of the hydrochars surface by Fe and Mg salts in order to improve ability of obtained material to remove pollutants from wastewater
- Mechanism and surface interaction between material and selected pollutant
- The results of this study contribute to the development of a new technology for obtaining value-added products from waste grape pomace, while ensuring sustainable management of waste biomass and closing the product life cycle.

Biography:

Jelena Petrovic, finished MS studies at the Faculty of Natural Sciences and Mathematics, University of Novi Sad in 2011. Doctoral studies at the Faculty of Technology and Metallurgy, University of Belgrade she ended in 2017. Since 2013., Jelena Petrović has been employed at the Institute for Technology of Nuclear and Other Raw Mineral Materials. Her investigations are based on the implementation and optimization of the hydrothermal carbonization process in order to valorize the agricultural residues into value-added products. As an author or coauthor, she published over 80 publications in the form of scientific papers and conferences.