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15TH ECerS C O N F E R E N C E
FOR YOUNG SCIENTISTS IN CERAMICS

BOOK OF ABSTRACTS

October 11-14, 2023
Faculty of Technology Novi Sad
Novi Sad, Serbia

**15th ECerS CONFERENCE for
YOUNG SCIENTISTS in CERAMICS**

**PROGRAMME
and
BOOK OF ABSTRACTS**

**October 11-14, 2023
Novi Sad, Serbia**

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**THE INFLUENCE OF BRUSHITE-METAKAOLIN GEOPOLYMER
MATERIALS ON PHYTOSTABILIZATION OF
LEAD IONS BY *FESTUCA RUBRA***

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Inorganic materials such as lime, calcium phosphates, and numerous aluminosilicates (red mud, fly ash, synthetic zeolites, clay) are used to immobilize metal/metalloid ions and improve soil quality, contributing to easier revegetation of contaminated soil. Using aided phytoremediation as a technique of choice for soil purification on metal-rich soils reduces the spread of pollutants by wind, soil erosion, and surface runoff. Studies have shown that *Festuca rubra* can tolerate high concentrations of metals, by using excluding strategies. Geopolymer materials used in this experiment were synthesized from a natural raw kaolinite clay with the addition of 2 wt.%, 4 wt.% and 6 wt.% of brushite (GPB2, GPB4 and GPB6). The main goal of this study is to examine the influence of brushite-metakaolin geopolymer materials on the phytostabilization efficiency of Pb(II) by *Festuca rubra*. The plant samples were grown using commercial substrate and seeds in eight different series, under controlled conditions. The series involved soil contaminated by Pb(II) treated with selected samples GPB2, GPB4 and GPB6, and the one untreated series and control series. Plant samples were collected after six weeks, and the plant height, fresh biomass, and dry biomass were measured. Germination rates of the plant samples were monitored during the experiment. Heavy metal content in the plant and soil samples was analyzed using atomic absorption spectrophotometer (AAS), and BCF, BAF and TF were calculated. Besides that, pH and organic carbon content in the soil samples were measured. Due to the fact that the starting materials which were used for GPBs synthesis were abandoned kaolinite clay and brushite obtained using green chemistry processes, byproducts of the synthesis are not harmful for the environment. In addition, this procedure contributes positively to the waste reduction.