

DOI: <http://doi.org/10.21698/simi.2019.ab16>

THE USE OF BAUXITE RESIDUE AS AMENDMENT FOR REHABILITATION THE ACIDIC SOILS. AN OVERVIEW ON A FIVE STAGES EXPERIMENT

Dobra Gheorghe¹, Iliev Sorin¹, Coteș Lucian¹, Boiangiu Alina¹, Lacatușu Radu², Ionescu Nicolae³ and Filipescu Laurențiu⁴

1. Vimetco Alum SA Tulcea, Str Isaccai nr. 82, cod postal 820216 Tulcea, Jud. Tulcea, alum@alum.ro, Romania
2. INCD-ICPA Bucharest, Bd. Marasti, nr. 61, cod postal 011464, office@icpa.ro, Romania
3. ARD, Station of Albota-Pitesti, Șos Pitești-Slatina, km 5, Comuna. Albota, Cod Postal 117030, Arges county, Romania
4. University Politehnica Bucharest, Spl. Independenței nr. 313, sector 6, București, Cod Poștal: RO-060042, Romania.

Abstract

This paper is an overview reporting on a five stages research program concerning the use of bauxite residue as amendment for rehabilitation the acidic soils. The first two experimental works on this subject deal with: a) Preliminary experiments with particularly selected soil compositions and selected plants from both spontaneous flora and high intensive culture plants, 2012- 2014; b) Acid Soils Remediation, Glass house experiment on maize plants growth, 2016-2017; These studies showed that the successful acidic soils remediation required some complementary adjuvant for significant changes in soil agrochemical properties, and for raising the soil fertility up to a reasonable level. In the second and the third stage - *Open field experiment on maize plants 2018-2019* - three property control adjuvant were used for this purpose: the bauxite residue for pH control, the organic compost as source of organic carbon and better control of the soil properties, and the NPK mineral fertilizers as source of main macronutrients. All these kind of formulations promoted in acidic soils normal vegetative plant growth and significantly rises in maize crop production and quality. The in both glass house and open field experiments on maize plants, the particular targets were: a) analysis and validation the good results of the glass house stage experiments; b) Better understanding of the BR rehabilitation effect on soil properties and composition after first year in a three years rehabilitation program; c) Accumulating credible data about crop outputs and grains quality in the remediated acidic soils. Also, these studies results sustain and bolster the expectations for the next two stages of the research program: a) Open field experiment on wheat plants; Final report 2019 and b) Open field experiment on sun flower plants; Final report 2020.