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Using agriculture waste and/or sulfur obtained from the residues of the desulfurization of natural gas and oil as fertilizer for productive purposes

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In the ongoing work, to avoid harmful effects of sulfur and agriculture waste to soil ecosystem and crops, we identified and assessed environmentally sound technologies for converting harmful wastes (agricultural and inorganic) in resources. We used polluting recalcitrant agricultural wastes (olive wastes and citrus pulps) and inorganic sulfur obtained from the residues of the desulfurization of natural gas and oil as fertilizer for a sustainable recovery of soils, eco-friendly agriculture while reducing sulfur gas emission in the atmosphere. For this reason, sulfur insoluble in its elemental form was alloyed with bentonite clay and or citrus pulp and or olive waste to be slowly released in soil where bacteria transform it in sulfate-sulfur, the chemical form soluble in soil and easily up-taken by plants. The results showed that after a seasonal vegetation cycle, sulfur bentonite is able to lower the pH of alkaline soils and to increase the growth of onions and beans compared to control. When sulfur bentonite was linked to olive waste or orange pulp, we observed an increase also in soil organic matter content and in MBC. The best result on soil was obtained by using a mix of sulfur bentonite plus orange pulp. Regarding crop productivity, onions grew better with sulfur bentonite plus orange pulp than sulfur bentonite or sulfur bentonite plus olive wastes. In contrast bean grew better with sulfur bentonite plus olive wastes. The data showed specificity between species and type of fertilizer obtained.

Biography

Muscolo Adele graduated in Biological Sciences (MSc), and has completed her PhD in Food Science at the age of 26 years at the Policlinic Federico II University of Naples, Italy. In 1988 she started her professional carrier as Researcher at Mediterranea University of Reggio Calabria where she is still working as Professor. Since 1990 she is Reviewer for Scientific International Journals and since 2008 she is Evaluator of national and international projects for European Community and Funding Research Agencies. She is Examiner of international PhD dissertation. She published more than 170 papers in international journals with IF and has been serving as an Editorial Board Member of many international journals. Additionally she is Associate Editor for JFR.

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