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Sobhy Ibrahim Nasr

ABSTRACT

Huge quantities of solid wastes are being generated from different industries causing environmental impacts, especially ceramic and porcelain industries. Some types of these wastes such as, sludge resulted from Industrial Waste Water Treatment Units and dust resulted from De-dusting or bag filter system possess physico-chemical characteristics that can improve desert soils fertility and enhance some important economical crops production (***Phaseolus vulgaris-L, Soya Bean, vicia Faba and Wheat***). The research work aims to find the ideal way for recycling of millions of cubic meters of wastes of ceramic and porcelain factories in Egypt. This study evaluates some ceramic and porcelain wastes as sandy soils conditioner. A field experiment was carried out during 2012/2013 growth seasons at the desert area beside some ceramic and porcelain factories (ceramica *La Beaute*, porcelaina majestic and ceramica bologna) in 10^{th} of Ramadan City far from the Cairo about 50 Km. 5, 10, 15 and 20% ceramic and porcelain wastes were added to sandy soils in separated plots. The obtained result indicates improvement in sandy soils fertility after cultivation, weathering resistance and less water consumption in water irrigation. 5% waste addition was found to cause the best sandy soils fertility performance and crops production. Sandy soils improvement were determined in terms of water holding capacity, porosity and fine particles; as well as plant properties in regards to plant biomass, pigments, carbohydrates and yield. Finally, it was

concluded that ceramic and porcelain wastes can be incorporated into sandy soils to improve soil characteristics and offer an economic, technological and environmentally sound solutions.

Key words: Ceramic-porcelain wastes, sludge, dust, phaseolus vulgaris, Soya Bean ,vicia Faba and Wheat , Plant growth factor, pigments, carbohydrates, yields, sandy soil, soil properties.

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ABBREVIATIONS

The following abbreviations are used in this thesis:

S_1	Sandy soil without any additions (desert soil control)
S_2	Sandy soil with 5% ceramic sludge addition
S_3	Sandy soil with 10% ceramic sludge addition
S_4	Sandy soil with 15% ceramic sludge addition
S_5	Sandy soil with 20% ceramic sludge addition
S_6	Sandy soil with 5% ceramic dust addition
S_7	Sandy soil with 10% ceramic dust addition
S_8	Sandy soil with 15% ceramic dust addition
S_9	Sandy soil with 20% ceramic dust addition
S_{10}	Sandy soil with 5% porcelain sludge addition
S_{11}	Sandy soil with 10% porcelain sludge addition
S_{12}	Sandy soil with 15% porcelain sludge addition
S_{13}	Sandy soil with 20% porcelain sludge addition
S_{14}	Sandy soil with 5% porcelain dust addition