Research Paper

An Asian Journal of Soil Science
Vol. 5 No. 2 (December, 2010) : 253-256
Received : July, 2010; Accepted : August, 2010

Effect of industrial sludge on the growth performance of *Gossypum arboreum* and *Calendula offecinalis*

V.A. KHATIK, D.B. SARODE, **R.N. JADHAV**, S.D. NARKHEDE **AND** S.B. ATTARDE

ABSTRACT

Agricultural application of Municipal Solid Waste (MSW), as a nutrient source for plants and as a soil conditioner, is the most cost-effective option of MSW management because of its advantages over traditional means such as landfilling or incineration. The aim of the present work is to study the effect of various dosage of industrial sludge on the cotton (*Gossypum arboreum*)and marigold (*Calendula offecinalis)* plant species. Total 26 plots of test plants with 2 control plots were arranged for the experiments of present work. The results obtained in the present study indicate that growth performance of both the test plants was affected by sludge dosage at 25%, 50%, 75% and 100%. When the experimental plots were compared with the control plots it was observed that the cotton and marigold plants at various sludge dosage have been reduced with performance. If we analyze the cotton and marigold plots at the 75% sludge dose, on 40th day after plantation, it was found that the cotton had a height of 11.2 cm and marigold had a height of 10.4 cm. Whereas on the same day the control plots of cotton and marigold had heights of 14.4 and 16.2, respectively, with a difference of 3 cm in the cotton plots and 5.4 cm in the marigold plots. It can be concluded from the results of the present study that the sludge from the electroplating industry cannot be used as a fertilizer or soil conditioner to the cotton and marigold plant species. The further work can be extended by utilizing the sewage sludge for applying on cotton and marigold plant species.

Khatik, V.A., Sarode, D.B., Jadhav, R.N., Narkhede, S.D. and Attarde, S.B. (2010). Effect of industrial sludge on the growth performance of *Gossypum arboreum* and *Calendula offecinalis.* *Asian J. Soil Sci.*, **5**(2): 253-256

Key words : Industrial sludge, Cotton, Marigold, Growth performance

INTRODUCTION

Everyday substantial amounts of aqueous effluents contaminated with various types of potential toxic elements and heavy metals are produced due to several anthropogenic activities like mining, smelting, metal pickling, rolling industries, and fly ash. These polluted discharges pose a tremendous hazard to human and wildlife. Not only effluents contaminated with heavy metals pose a threat to the environment but also soils and sludge contaminated with metalliferous wastes, which are difficult to reclaim and have tremendous pollution potential. High toxic metal concentration has potential to restrict plant growth (Bhattacharya *et al*., 2009). The treatment and disposal of industrial and residential sludges are an environmentally sensitive problem because sludge is good fertilizer but may contain heavy metals, which could reduce productivity and cause environmental risks. The common disposal processes for sewage include land filling, and incineration. However, the future of sludge disposal through land filling is not very bright due to the fact that a large volume of soil is required to cover the waste in order to prevent the leaching of potentially toxic compounds including metals and phenols (Hossain *et al*., 2009). Therefore, to avoid the harmful effects of heavy metals in plants and animals, it is necessary to remediate heavy metal contaminated water and soils. Conventional physical and chemical processes for the treatment of heavy metal contaminated wastewater and soil are not

Correspondence to :
R.N. JADHAV, School of Environmental and Earth Sciences, North Maharashtra University, JALGAON (M.S.) INDIA
Email : ramjd1@gmail.com

Authors' affiliations:
V.K. KHATIK, D.B. SARODE, S.D. NARKHEDE AND S.B. ATTARDE, School of Environmental and Earth Sciences, North Maharashtra University, JALGAON (M.S.) INDIA.