



Effects of Fly Ash on Plant Growth

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Abstract : *Fly ash is a waste product of thermal power stations. In view of its potential disposal problem, this investigation was carried out to search an economical and eco-friendly solution of its disposal by using it as a nutrient source in agriculture for growth and yield of mung bean (*Vigna radiata* L.). Soil analyses revealed that fly ash amendment had improved the chemical and mineralogical properties. Soil nutrients like nitrogen, phosphorus, potassium increased significantly in fly ash amended soil. At lower levels of amendments, fly ash significantly induced the growth performance: % seed germination, stem length, root length, number of leaves, leaf surface area, percentage of moisture content, chlorophyll content in leaves and overall growth of mung bean plants.*

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However, at higher doses, fly ash inhibited the growth of mung bean plant. It is concluded that up to a certain level fly ash amendments could be beneficial for Indian agricultural fields and can be utilised as feasible management strategy for the disposal of this major industrial waste.

Keywords : *Vigna radiata, soil, fly ash, chemical analyses, growth performance.*

Introduction :

Fly ash is a finely divided residue resulting from the combustion of coal. Every year 85 million tonnes of fly ash is produced by 82 thermal power stations operating in the country. According to Pujara and Dash (2006), fly ash is a serious problem due to its physical characteristics and sheer volumes generated. The impact of coal residue on health and environmental consequences has been reviewed extensively (Agrawal and Sinha, 2001). It has been proved that fly ash disturbs the ecology through soil, air and water pollution.

Despite the deleterious effects of fly ash, it continues to be the potential source of macro and microelements (Mehra et al., 1986). The alkaline nature of fly ash has its use as amendment in agricultural fields.

Several researchers (Karmakar et al., 2010;