INTRODUCTION

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Horticulturists are frequently concerned with heavy metal pollution, since many horticultural activities are associated with urban areas and because the intensive nature of horticulture entails the frequent use of fertilizers and pesticides which may lead to pollution problems.

Of great environmental significance is the ability of plants to absorb heavy metals which are liable to be built up to toxic levels through the application of sewage sludge and cause damage to sensitive plants. Even when no visible damage is infliction, the toxic elements accumulated in vegetable plant tissues may be introduced into the food chain .

Evidence that heavy metals uptake and translocation are genetically controlled warrants the selection of varieties that assimilate the least heavy metals and translocate the least to the plant part used for human consumption. Also, the relationship between available heavy metals and uptake by any species of plant will be modified by soil conditions (Purves, 1977).

Due to the possibilities of reducing heavy metals content to below permitted values by choice of suitable cultivar and through the application of soil amendments, there are compelling reasons for a thorough investigation of their role in controlling heavy metals uptake by vegetable plants.

Therefore, the current study restricted emphasis on the effect of two lettuce cultivars and three soil amendments i.e., organic manure, clay and lime on reducing the uptake of cadmium, nickel and lead metals added to the soil in the form of chloride salts or through sewage sludge application. This effect was measured in terms of plant growth, yield, and chemical composition.

Since, the highest bioaccumulation of heavy metals generally is reported for leafy vegetables (mainly lettuce) which is among the popular vegetables for Egyptian citizens, it was chosen as an indicator for the assessment of such effect.

It is hoped that the current achievement sets forth on understanding the role of cultivar choice and soil amendments application in controlling pollution with heavy metals in vegetable plants.