

Impact of Concentration of Heavy Metals on Vegetables and Application of Pesticides- Garba Wafi Hassan- Adamawa State University

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The plant protection products in additions to their specific role to kill pest on vegetables were observed to exhibit a characteristics impact towards increasing heavy metals bioavailability within soil and streaming rate in plants. In this study, the role of pesticide 2,2-dichlorovinyl dimethyl phosphate in influencing heavy metal uptake by the plants was evaluated by comparing the concentration in roots, stem and leaves of sorrel (*Rumex acetosa*) cultivated with and without pesticide. Atomic absorption spectrophotometry was used to determined the concentrations of heavy metals in plant. The fractions of some heavy metal(Cd, Pb, Zn and Mn) taken up by the plant treated with pesticide compared to untreated were observed to follow the trend $Pb > Cd > Mn > Zn$ respectively. The correlation between the pesticide treated in plant and untreated plant in metals concentration was visible for the above part of the plants. The measured concentration of Cd, Pb, Mn and Zn when compared among the various organs shows an elevated amount in the leaves, particularly in Pb concentrations. From the results, the pesticide was observed to facilitate significant metal uptake in plant. The treated sorrel exhibit high heavy metals compared to untreated sorrel.. With worldwide overwhelming metal focus expanding all through the World because of different human and normal exercises, biological systems have been and are being debased with substantial metals. Exercises, for example, controlled and uncontrolled removal of squanders, unplanned and process spillages, utilization of Agricultural composts, herbicides, bug sprays and pesticides, and relocation of contaminants into a non debased land as fumes and leacheate through soil, or as residue, or spreading of sewage slop, contributes towards pollution of the biological system. A wide scope of materials which cause sullyng incorporates, substantial metals, inorganic and natural mixes, oils and tars, harmful and unstable gases, ignitable and putrescible substances, dangerous squanders and explosives. It has just been appeared from examines that defilement levels of effectively extractable copper, zinc, lead and cadmium are available in surface soils, and pollution levels of copper, zinc and iron happen in herbage notably around overwhelming industry zones . The utilization of pesticides in the treatment of

vegetables and the nearness of substantial metals in pesticides is one of the wellsprings of overwhelming metal contamination of vegetables. The destinations of the current examination in this way, was to build up the impacts of pesticides (DELVAP 1000EC) which is one of the commonest pesticides utilized by vegetable ranchers in Yola, on the substantial metals (Cu, Cd and Pb) levels in two types of Spinach (maroon and green) developed in Yola.

Materials and method A pilot garden was readied comprising of four beds, and two types of spinach (maroon and green) were planted. The beds were flooded with clean faucet water. Three weeks in the wake of planting, two of the beds (one maroon and one green) were splashed with pesticide (DELVAP 1000 EC). The utilization of the pesticide was reshaped week by week until development of the spinach following 12 weeks. All the four beds were reaped and isolated appropriately. Tests were taken from every one of the four beds, and were altogether cleaned and washed to expel residue, earth and potential parasites or their eggs. Each example was separated into three sections (stem, leaves and roots).the tests were diminished to fine powder on a processor before drying at 60°C in a broiler (LTE Greenfield) to a steady weight.

Conclusion

The results revealed that the application of pesticides (DELVAP 1000EC) increases the concentration of Cd, Pb and Cu in Spinach. The maroon specie of Spinach has higher tendency to accumulate Cd, Pb and Cu compared to the green specie. The leaves of spinach also accumulate higher concentration of the heavy metals (Cd, Pb and Cu) compared to the stem and roots. The concentration of Cd, Pb and Cu in leaves of maroon Spinach treated with pesticides are 6.8, 1.4 and 18.6 times respectively higher than the maximum tolerable levels of 30µg/g, 300µg/g and 100µg/g for Cd, Pb and Cu respectively in plants; while the green spinach treated with pesticides, the concentration of Cd and Cu in leaves are 4.9 and 14.7 times respectively higher than the maximum tolerable levels.