

## LIII-10

### Extent of heavy metal contamination in soil, water fodder and in some popular vegetables in markets of Hyderabad

G. Bhupal Raj<sup>1</sup>, V. Shashi Bhushan<sup>2</sup>

<sup>1</sup> RARS, Jagityal, India

<sup>2</sup> ANGR Agricultural University, Rajendranagar, Hyderabad- 500 030, A.P. India

E-mail:Sash\_3156@yahoo.co.in



Environmental pollution is a global problem and the pollutants from industrial and city sewage enter into the live stock productive system and to the food chain. In Hyderabad and in the surrounding areas impact of pollution on domestic and wild animals due to chemical toxicity were observed threatening the animal and human health. The heavy metal pollution is of serious health concern. Hence studies were conducted in and around Hyderabad and Secunderabad cities of Andhra Pradesh and also in the major vegetable markets viz., Mehdipatnam, Erragadda and Monda which receive variety of vegetables. Heavy metals from industrial wastes and sewage water are let out into the Musi river and that water is utilized for growing fodder and cultivation of vegetables. The heavy metals contaminate drinking water, soil, fodder and food. High levels of heavy metals like Cd, Pb and Hg were observed in soil, water and animals. These accumulate in one or more body organs in food animals and are transmitted through food chain causing severe public health hazard. The major share of vegetables supplied to these vegetable markets are mostly from in and around Rangareddy

and Hyderabad districts irrigated with the sewage mixed musli water, which is highly polluted with trace and heavy metals. Various vegetables comprising of leafy vegetables, tubers and vegetables were collected periodically every month, analysed the heavy metal contents and categorized accordingly. Leafy vegetables were highly contaminated with a total metal load of 659 mg kg<sup>-1</sup> followed by tubers (220 mg kg<sup>-1</sup>) and vegetables (185 mg kg<sup>-1</sup>). Among the leafy vegetables, locally popular Chukkakura (green leaf vegetable) recorded maximum metal load (908.62 mg kg<sup>-1</sup>) followed by Palak (647.91 mg kg<sup>-1</sup>) and Amaranthus (421.4 mg kg<sup>-1</sup>). Carrot is highly contaminated (298 mg kg<sup>-1</sup>) followed by Colacassia in tuber group with total metal load of 143 mg kg<sup>-1</sup>. Among the vegetables, Bhendi recorded the highest metal load of 226 mg kg<sup>-1</sup> followed by Cluster bean (169.66). Brinjal is the least in heavy metal load (160mg kg<sup>-1</sup>). Contamination of vegetables with heavy metals is in the order of Co (43 times), Cr (23 times), Pb (15 times), Ni (5 times), Fe & Cd (4 times) and Zn (3 times) and their contents are higher than the permissible limits for consumption Heavy metal contents were observed to be more in the vegetables grown during summer season (919.39 mg kg<sup>-1</sup>), followed by those grown during winter (423.29 mg kg<sup>-1</sup>) and rainy (329.91 mg kg<sup>-1</sup>) seasons. There was no variation in the samples collected from different markets due to same source of irrigation.

**Keywords** food chain;heavy metals;leafy vegetables;sewage water