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QUALITATIVE AND QUANTITAVE ANALYSIS OF TOXIC METAL ANALYSIS IN VEGITABLES AND PADDY CROPS: ANDHRAPREDESH

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ABSTRACT

Now a day's water soil and food items are ale are polluting with toxic metals. These toxic metals causes to cancer and other health problems. This metal contamination occurring from Industrial effluents. Miryalaguda is one of the town in Nalgonda District, Andrapradesh, India. This town is developing industrially very rapidly. Similarly in pollution aspect also. We studied toxic metals quantification in Paddy, Tomato, Cabbage, and Spinach by A.A.S.

Keywords: Toxic metals, Miryalaguda, A.A.S, Paddy,Spinach,Cabbage,Tomato

INTRODUCTION

Geographically the city Miryalagud located at 16°52'19"N 79°33'46"E.[1]. Miryalaguda It is around 148 km from Hyderabad/160 km from Vijayawada,120 km from guntur,180 km from Warangal is one of the most highly industrialized and rapidly developing towns in the state of Andhra Pradesh, India. Miryalguda is famous for the paddy growth and it is listed among the top 5 paddy markets in Andhra Pradesh. It is in close proximity to river Krishna.

Figure.1

Across the river vegetables are cultivating in villages near by Miryalaguda. Nearly 6 years back Pharmaceutical and other industire are established in Miryalaguda rural.The toxic effluents from industries effecting and paddy, vegetables. Depends on more availability and usage we are selected paddy, Tomato, Spinach, Cabbage for our study. From this study we identified the presence of Toxic metals Pb, As, Cr, Ni, Cd. High concentrations of these metals causes permanent nervous system failure, kidney damage, Low B.P, Liver failure sometimes death

Figure.2 paddy

Figure.3 Tomato

Figure.4 Cabbage

Figure.5 Spinach

MATERIALS AND METHODS

We are collected vegetables sample from local market, from villages and fields in Miryalaguda rural. A.A.S (Atomic absorbance spectroscopy) instrument is novAA 350 with lamp AA280FS Atomic Absorption Spectrometer lamp. Wavelength Range is 185 to 900 nm, Lamp type is Hollow-Cathode and Deuterium.

The vegitable sample was dried and powdered smoothly then passed through a 20 mesh sieve to obtain very fine particles. 5.0 g of an air-dried, sample was placed in an Erlenmeyer flask and 20 mL of the extracting solution HNO_3 was added to it. Then it was placed in a magnetic stirrer and the mixture was stirred for 20 minutes. The resulting solution was filtered through a Whatman No 42 filter paper into a 50 mL polypropylene vial and diluted to 50 mL with the extracting solution.

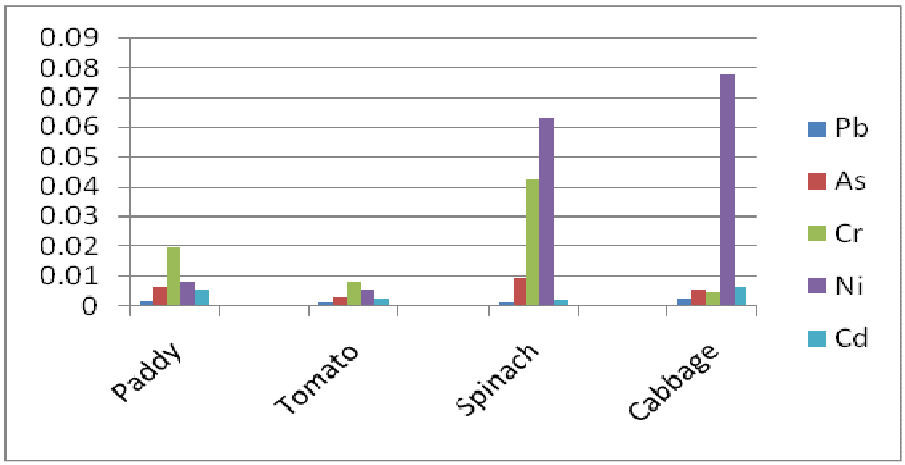
The analytical reagent blanks were also prepared and these contained only the acids. The above mentioned procedure is in accordance with Mehlich-I extraction. Wavelength is fixed between 185 to 900 nm. Lamps are Hallow – cathode and Deuterium. Air Flow adjusted to 17.0 (L/min). Acetylene flow 1.5 (L/min). Lamp current is mA 15. Burner Head is 10 cm. Flame is Air and Acetylene.

RESULTS AND DISCUSSION

From previous literature survey we are not found any analytical reports of toxic metals in Vegetables in Miryalaguda area. From above results we identified that in paddy chromium levels are very more. In tomato also chromium is more. But in spinach Ni is more. In cabbage also Ni is highly concentrated. Metal whatever, all are vey toxic to human. So many health problems may occur due to presence of these toxic metals.

Table.1 Metal concentrations in paddy and vegetables

Metal	Paddy	Tomato	Spinach	Cabbage
Pb	0.0012	0.0008	0.0011	0.0023
As	0.006	0.003	0.009	0.005
Cr	0.019	0.008	0.042	0.004
Ni	0.08	0.05	0.063	0.078
Cd	0.005	0.0023	0.0017	0.006



Graph.1 Metal ions linearity graph

CONCLUSION

We are concluded that, this toxic metal enters in to paddy and other vegetables from effluents of industries. Formers are cultivating with water from canals. So people and other environment protectors have to take care of about water pollution from Industries.

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