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THE STUDY OF LEAD CONCENTRATION IN EXPOSED FRUITS SOLD IN RUMUOLA, RUMUOKORO, OIL-MILL, MILE I AND TOWN MARKETS IN PORT HARCOURT

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Abstract

The concentration of Lead in the extract of washed edible fruits from different markets located along major roads in Port-Harcourt such as Rumuola, Rumuokoro, Oil-mill, Mile 1 and Town were evaluated using atomic absorption spectrophotometer. The results obtained showed that the lead concentration from Rumuola, Rumuokoro, Oil-mill, Mile 1 and Town were 3.51746gm/l, 5.94136gm/l, 15.05802gm/l,8.13581gm/l and 12.82715gm/l respectively . The result indicated that lead is present in toxic amount on exposed fruits along major roads as a result of lead pollution from combustion of leaded gasoline in PORT-HARCOURT .

INTRODUCTION

Lead is generally known as one of the most harmful naturally occurring substances when injested or inhaled to human system, particularly to children. High injestion or accumulation of lead substances to the human system can lead to the damages of major internal organs like kidneys, liver and the central nervous system and ultimately or consequently can lead to death according to WHO; 1995.

Absorption of lead substances by plants can lead to lead poisoning which can be detected in the blood stream of living organisms when consumed. Lead as a chemical substance is an element which can be located in the transition block of the periodic table with a proton number of 82 and atomic weight of 207.19 and a melting and boiling points .327.5^{o}c and 1740^{o}c respectively.

Living organisms like humans may be exposed to air pollution directly through incidental ingestion of lead that has settled out from the air into soil or edible materials when leaded gasoline is burned, it emits particles of lead into the air, where they absorbed for a long period of time. The lead particles eventually are also absorbed by the soil and consequently by plants. The long consumption of lead in fruits or any other sources of food can be however, have lethal or disastrous effect in the human system: some of the obvious effects of lead absorptions include: abdominal cramps, constipation, loss of developmental skills in children, high blood pressure, memory loss, kidney dysfunctional. The concentration or amount of lead were studied some commonly staple or edible fruits that are frequently consumed, these fruits cucumbers garden eggs, oranges and apples. These fruits are fleshy, edible and succulent.

Materials and Method

The materials used in carrying out this analysis are:

- Water
- Sample containers
- Fruits (cucumbers, garden eggs, oranges and apples)
- Atomic Absorption Spectrophotometer (AAS)

Method

The use of atomic Absorption spectrophotometer (AAS).

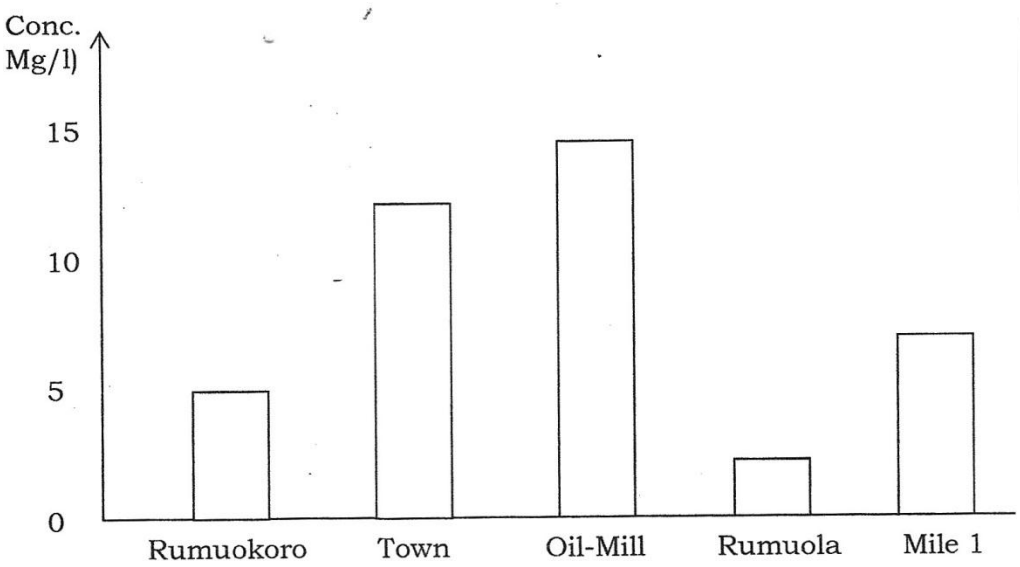
Procedure

- Collection of exposed edible fruits like cucumber, apples, oranges and garden eggs.
- The fruits were washed separately according to their locations.
- The fruits were crushed and the extracts obtained for analysis.
- The extracts from cucumber, garden egg, apples, and oranges were properly labelled and sent to the laboratory for analyzing the lead content.
- Each of the extracts was subjected to Atomic Absorption Spectrophotometer for analysis.
- Different concentrations were obtained and properly recorded with the different market locations for which they were obtained.

Result and Discussion

Table 1: Concentration of lead from the five market roads

S/N	Sample	Pb(mg/l)	Pb(µg/dl)
1.	Rumuokoro Market	5.94136	594.136
2.	Town Market	12.82715	1282.715
3.	Oil-Mill Market	15.05802	1505.802
4.	Rumuola Market	3.51746	351.746
5.	Mile 1 Market	8.13581	813.581



Discussion

From the analysis, the results showed that the concentration of lead in Oil- Mill Market exposed edible fruits is the highest, with a concentration of 15.05802mg/l (1505.802µg/dl) as compared to Town Market fruits (concentration of

12.82715mg/l or 1282.715 µg/dl) and Mile 1 Market fruits (concentration of 8.13581mg/l or 813.581µg/dl) and Rumuokoro (concentration of 5.94136mg/l or 594.136µg/dl) and Rumuola Market exposed edible fruits, which had the least lead concentration of 3.51746mg/l (351.746 µg/dl).

Conclusion

From the result, it could be concluded that lead is present in the atmosphere, primarily from automobile emission and is deposited on exposed fruits from within that environment. The concentration of lead on exposed food stuffs is usually high in busy roads location compared to those along less busy roads. Consumers purchasing food stuffs along road sides are at high-risk of lead poisoning if they consume the foodstuffs continuously without washing it thoroughly. The elevated levels of lead in the individual's bodies may result in various health and developmental problems. Therefore, washing foodstuffs, especially exposed edible fruits gotten from markets (especially those located in the vicinity of busing roads) thoroughly is essential.

Recommendations

We recommend that more research work should be carried out on exposed edible fruits to check for the presence of other toxic heavy metals.

We also recommend that the Ministry of Health should carryout out campaign to alert the public on the consequences of consuming exposed edible fruits sold along major high ways without washing.

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