TOXIC LEVELS OF ARSENIC AND PHOSPHOROUS FOUND IN SOME COMMONLY CONSUMED FRUITS SOLD IN THE MARKET IN BENIN CITY

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ABSTRACT

Background: Fruits for commercial purposes are usually harvested unripe and transported to their site of retail in order to avoid spoilage. In most developing countries such as Nigeria, this practice has led to the use of several chemicals to ripen fruits without regard to its potential toxic effect on the health of the consumers.
Purpose: The present study was carried out to determine the levels of arsenic and phosphorus in fruits artificially ripened with these compounds in Benin City, Edo state Nigeria.
Method: Fruits were purchased from four randomly selected markets in the city namely; Uselu market, New Benin market, Oba market and Oregbeni markets. 2 sets of various fruits (mango, banana, plantain, and avocado pear) were used. A set of ripe fruits were purchased from the markets, while another set of unripe fruits were ripened artificially using calcium carbide. Levels of arsenic and phosphorus were measured in the peels and flesh of the fruits using atomic absorption spectrophotometer.
Results: The result of the analysis showed high levels of arsenic (0.021-0.097 mg/kg) and phosphorus (30.5 – 690.0 mg/kg) in the fruits marketed in Benin city. For mango, level of arsenic and phosphorus was greater on the peel (0.064 and 65.5 mg/kg respectively compared on the flesh (0.021 and 36.0 mg/kg respectively). Same was observed in plantain with higher arsenic and phosphorus levels on the peel than on the flesh (0.037 and 0.023 mg/kg respectively). This was not so with the banana, where the level of arsenic and phosphorus on the peel (0.053 and 254.0 mg/kg respectively) was lower than that on the flesh (0.066 and 289.0 mg/kg respectively). Also, arsenic and phosphorus levels were found to be highest on the flesh of the avocado pear (0.097 and 302.0 mg/kg).
Conclusion: Many fruits sold in Benin City contain high levels of arsenic and phosphorus. There is therefore need for strong legislative frame work, public enlightenment and education to curtail the practice of using chemicals to ripen fruits, considering the harmful effects of these chemicals.
Keywords: Calcium carbide, ethylene, artificially ripened fruits, Arsenic, Phosphorus.