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CULTIVATION OF THE POTATO IN KOSOVO AND ANALYSIS OF SOME QUALITY PARAMETERS

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Abstract. Potatoes in Kosovo are cultivated in about 10,000 ha with a low average production of 10-12 t /ha and represent one of the main agricultural crops, both for agro-economic, physiological and productive importance, as well as in feeding the population. The purpose of the study was to research the level of potato cultivation in Kosovo and to determine some toxic elements of potato cultivated in some localities of Kosovo and comparing this level with the standards allowed by the World Health Organization regulation ,also comparing it with the standards allowed by Codex Stan 193-1995, for fruits and vegetables.
Based on the results obtained for elements Zn, Cu, Pb and Cd , there was an increase of heavy metal concentrations in potato compared to the level allowed by the World Health Organization (WHO).

Keywords: Potato cultivation in Kosovo, potato quality and its importance.

INTRODUCTION

Patato is a wide spread plant, with high production skills and multifunctional usage. It is a daily component in feeding people, the first subject and very important in the food processing industry, in which is created starch, alcohol and other products.[1] The chemical composition of the patato is complex enough and it depends from the cultivator, the conditions of the cultivation, manner of feeding, cultivation areas etc. In average the chemical composition of the patato goes around 75% of water, 17-23% starch, 2% nitrogen compounds and 1% mineral materials, 1% cellulose, 0.15% grease, 0.4% sugar, 2.5% pectin, significant amounts of C and B vitamins, various acids of (apple, lemon, wine) and various enzymes. [2],[3]

Fig. 1. Patato

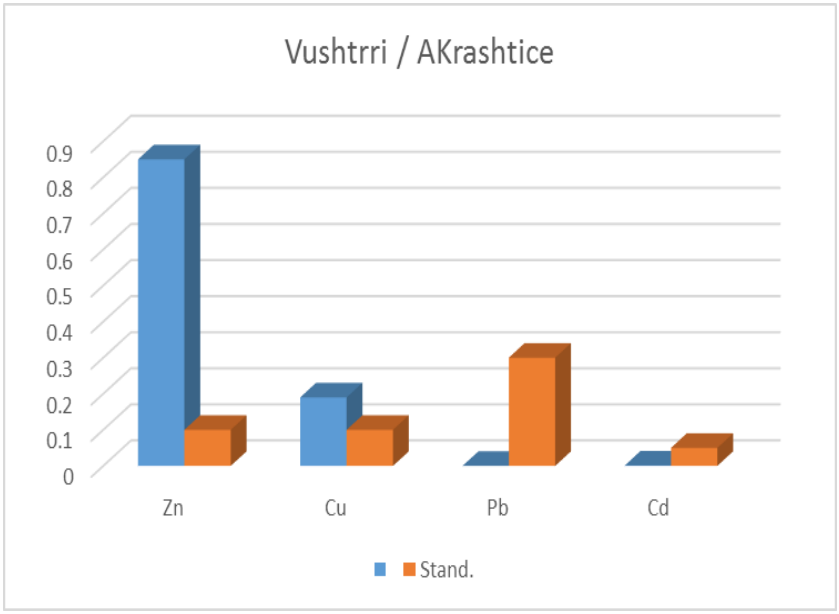
Earth is one of the most important resources of the contamination of plant foods from heavy metals that enter in the human and animal organism through the food chain.
The term “heavy metals” refers to each metal element that has a relatively high density, which is toxic or poisonous, and in high concentration. Heavy metals are created in the top layer of the earth and can be transferred from the earth in other components of ecosystem, like in underground waters or in harvest, and can also influence in the health of people through the supply of water and food chain. High concentrations of Pb and Cd in diets are linked with the development of many diseases, especially those cardiovascular, kidney, nervous and ossuary tissues. [4],[5]
The cadmium accumulation (Cd) in the human body can cause injuries of kidney, bones and lungs, whereas the accumulation of bullet may damage the central nervous system, kidney and blood system.

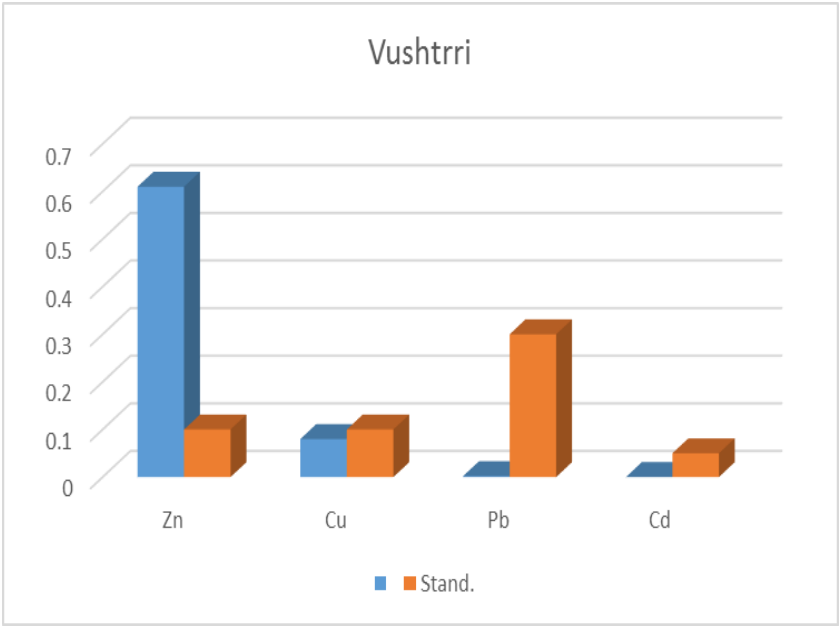
MATERIAL AND METHODS

The identification of the area for getting the samples was based in those locations where we thought we may have influence from outside factors, and we were mainly oriented in those spaces. The gained samples were taken in the region of Vushtrri and Obiliq.[6]
Primarily, the gained samples were stuffed in small particles and then they were grinded. From the grinded mass were taken 20g and were placed in the mineralization tank, treating it in 400^0C temperature in 60 min.
The liquid mass was filtered and then the toxic elements were analyzed through Spectrophometer HACH 2000.

RESULTS AND DISCUSSION

From the analyzed results for Cd, Pb, Zn and Cu elements, we can conclude that in gained patatoe samples we have an overrun concentration of Zn, expressed in mg/kg, conforming to the prescribed standard from The World Organization of Health.
Also, in the locations Vushtri/ Akrashtice we have and overrun of the standard, seen in the first figure of distribution of copper.
In Vushtri we have had a fixed concentration of elements comparing to the allowed conctentration from WHO. This increase has come as a results of pollution of the river Sitnica and from the resident who has had planted potatoes and watered them directly with the same water.


Vushtrri / AKrashtice
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Zn
Cu
Pb
Cd
Stand.


Vushtrri
0.7
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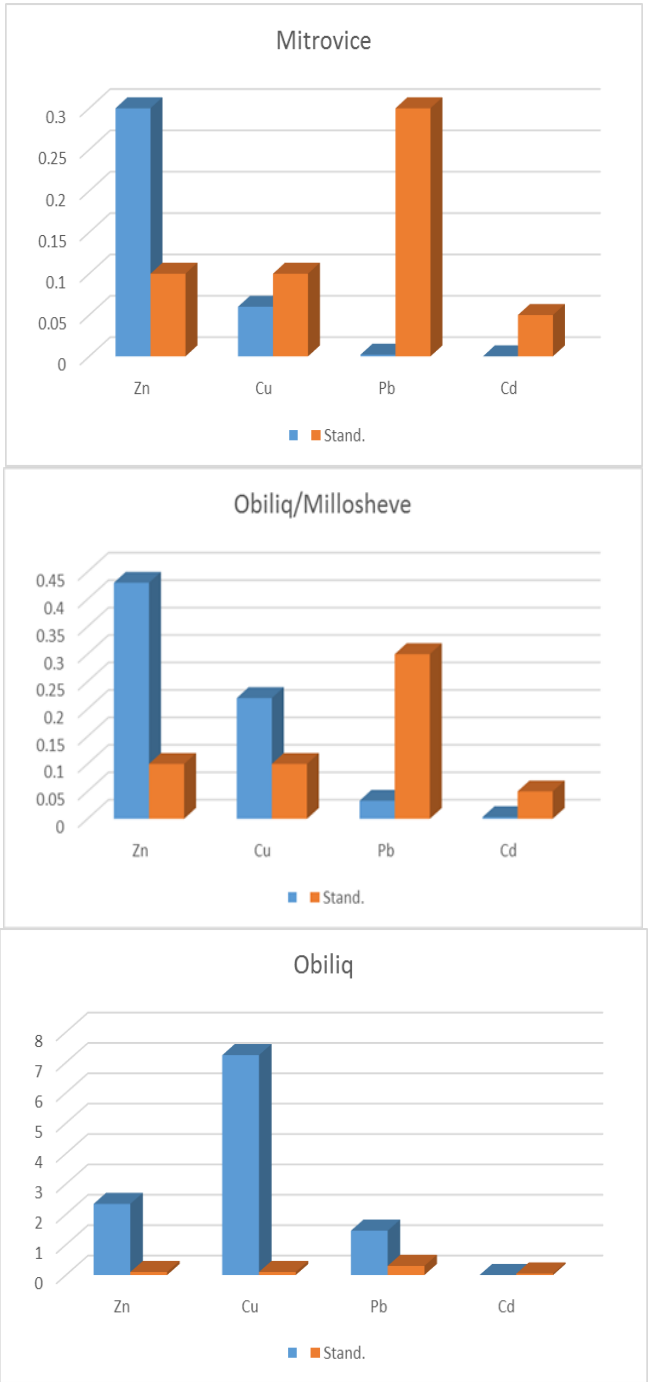

Figura 2. Heavy metal content (mg/kg) by localities**.**

CONCLUSIONS

From the gained results we can conclude that:

- The irrigation of agricultural lands should be strictly prohibited in the river Sitnica, where this phenomenon is still applied is some localities. In the most of spaces this phenomenon is not applied, as a results of the functionalization of water system.
- Also, a suggestion for the residents that cultivate this product and others should analyze the agricultural lands before having a realistic mirror.
- Should make systematic analysis of authorized people to this.
- Especially, the increase of concentration level of Pb, can cause highlighted consequences to children.

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