

Effect of Compost Application on Uptake and Allocation of Heavy Metals and Plant Nutrients and Quality of Oriental Tobacco Krumovgrad 90

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Abstract : A comparative research on the impact of compost on uptake and allocation of nutrients and heavy metals and quality of Oriental tobacco Krumovgrad 90 has been carried out. The experiment was performed on an agricultural field contaminated by the lead zinc smelter near the town of Kardzali, Bulgaria, after closing the lead production. The compost treatments had significant effects on the uptake and allocation of plant nutrients and heavy metals. The incorporation of compost leads to decrease in the amount of heavy metals present in the tobacco leaves, with Cd, Pb and Zn having values of 36%, 12% and 6%, respectively. Application of the compost leads to increased content of potassium, calcium and magnesium in the leaves of tobacco, and therefore, may favorably affect the burning properties of tobacco. The incorporation of compost in the soil has a negative impact on the quality and typicality of the oriental tobacco variety of Krumovgrad 90. The incorporation of compost leads to an increase in the size of the tobacco plant leaves, the leaves become darker in colour, less fleshy and undergo a change in form, becoming (much) broader in the second, third and fourth stalk position. This is accompanied by a decrease in the quality of the tobacco. The incorporation of compost also results in an increase in the mineral substances (pure ash), total nicotine and nitrogen, and a reduction in the amount of reducing sugars, which causes the quality of the tobacco leaves to deteriorate (particularly in the third and fourth harvests).

Keywords : chemical composition, compost, heavy metals, oriental tobacco, quality

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