NEW GLASS FERTILISER FOR TOMATO CROPS TO REDUCE ENVIROMENTAL IMPACT

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INTRODUCTION

The optimum crop production needs fertilization strategies that take into account the type of crop, soil conditions and weather as well as the actual practice of seed-fertilizer-irrigation-harvest by the farmer. This work is focused on to avoid or minimize the environmental impacts that nitrogen fertilizers cause in the crop or growing fields. In order to minimize this impact, this project proposes to develop controlled release fertilizer glasses of macro and micronutrients so that leaching is according to the requirements of absorption of the tomato plant and no any other dissolving species could pass to groundwater and then preventing contamination.

METHODS

The project was carried out in one hectare of land in which half has been treated with conventional fertilizer (12-14-25) and the other half with the new fertilizer based on glass (8,78-0,72-13,07) in “Vegas del Guadiana” in Extremadura region (Spain) as underground fertilizing. Prior to application of fund fertilization, the agricultural soil was analyzed. Later, after the sowing of the plants and their growing has been followed, foliar analysis, control of pests and weeds was made. From planting, the tomato plants are growing in relation to climate and genetic conditions.

RESULTS

No significant differences have been found in foliar analysis in both trials. Significant differences have been found in the B, Ca and Mn and Mg content in the plant according to the most suitable nutrient levels in tomato plants. Therefore, no significant differences have been found in the quality parameters currently analyzed in tomato fruits.

CONCLUSION & IMPACT

• This study shows that tomato crop in Extremadura with the new fertilizers could be a new line of environmental way of cultivating.
• These new product to fertilizer show low solubility avoiding soils and rivers contamination.
• The yield of this crop has increased spectacularly with the application of this new fertilizer. This study must be completed with more studies during several campaigns to help the tomato production more sustainable by obtaining more production surface thereby reducing the consumption of conventional fertilizers.
• The cost of this new glass fertilizers is higher than the conventional ones, but the idea is to elaborate the new products with glass residues and incorporate chemical elements with ashes from biomass boilers.

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