

**THE INFLUENCE OF FOLIAR FERTILISERS ON THE PENETRATION,
UPTAKE AND THE DISTRIBUTION OF THE MICRONUTRIENTS IN
DIFERENT ORGANS OF SUNFLOWER PLANTS**

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Abstract

*The quantification of the influence of complex foliar fertilizers (CFF) upon the micronutrients absorption through the plant teguments and their translocation in sunflower (*Helianthus annuus L.*) vegetative organs (leaves, stem and tops), as well as the influence on fresh and dry weight of these organs. The diluted CFF solution have been applied only on a part of these leaves while the micronutrients determination have been done only in the plant organs untouched with CFF solution. The results obtained have revealed that micronutrients uptake and absorption only in the plant organs untouched with CFF solution were significantly higher.*

INTRODUCTION

In order to develop a methodology for quantifying the micronutrients foliar absorption applied through leaves plant and their translocation in other organs of the plant test and the study of some factors that may influence these processes were carried out within an experiment in the green house.

MATERIAL AND METHODS

Experience has been organized in a Mitscherlich pots with capacity of 10 kg dry soil and the number of pots being 30 (15 pots with optimal soil fertilisation and 15 deficiency soil fertilization). Foliar fertilizer complex with the following composition: 187 g N, P 38 g, 115 g K, 0.60 g Fe, Mn 0.352 g, 0.251 g Zn, B, 1.005 g, 0.150 g Mo (g/kg of fertilizer). Plant test was sunflower HS Favorit, foliar treatments were applied on four leaves. The number of treatments was three. Samples of plant material were taken at 3 days after the last treatment being harvested untreated organs of plants.

RESULTS AND DISCUSSION

Application of foliar fertilizers (figure 1-2) determined an increases of plant biomass, increases being, in generally, insignificant statistically, excepting with the plants grown on deficiency fertilized soil. In general, data reveals that the plants growing on deficiency substrate responds better to foliar fertilization. Concentrations of micronutrients determined on the dry matter of plant have been multiplied by the ratio between the green mass of the treated leaves and untreated leaves. Accumulation of micronutrients (Zn, Cu, Mn and Fe) in the dry matter of vegetative organs (leaf opposite to the treated leaves) of sunflower are generally higher in a variants with ICF, compared with the control (treated with water) and increases are generally statistically assured. Concerning the influence of soil fertilization condition, the plants growing on poor substrate accumulated in their tissues a higher quantity of micronutrients (figure 3-4).

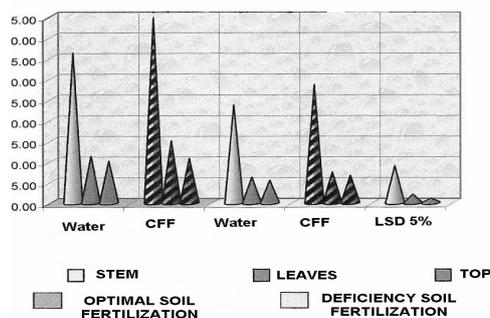


Fig. 1. Influence of CFF application (1.5%), only four leaves on the fresh weight of the plant organs untouched with CFF

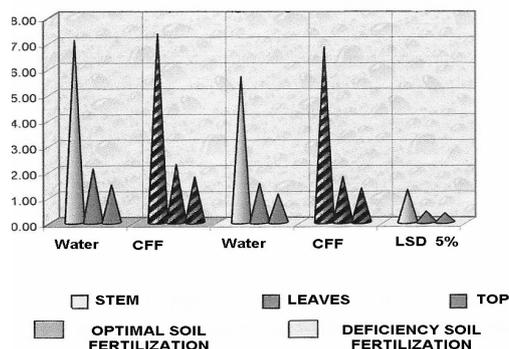


Fig. 2. Influence of CFF application (1.5%), only four leaves on the dry weight of the plant organs untouched with CFF

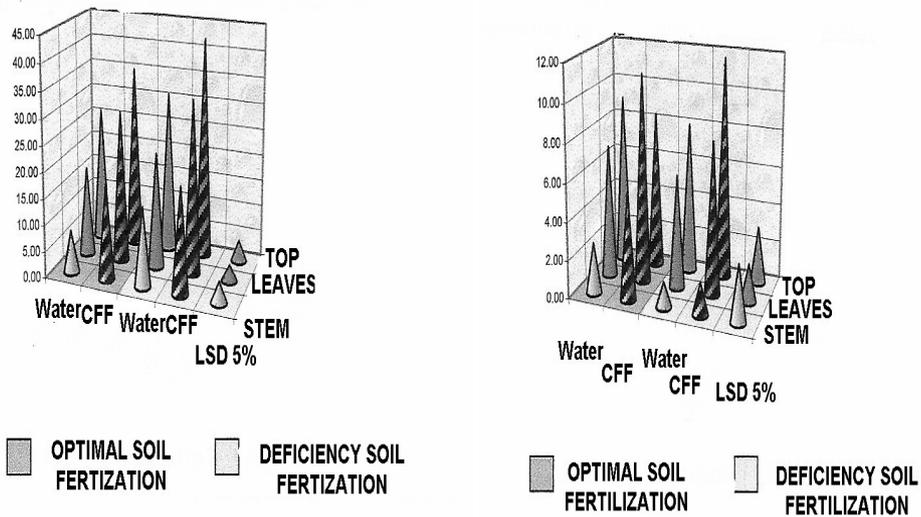


Fig. 3. Influence of CFF application (1.5%), only four leaves on Zn and Cu uptakes in dry matter of the plant organs untouched with CFF

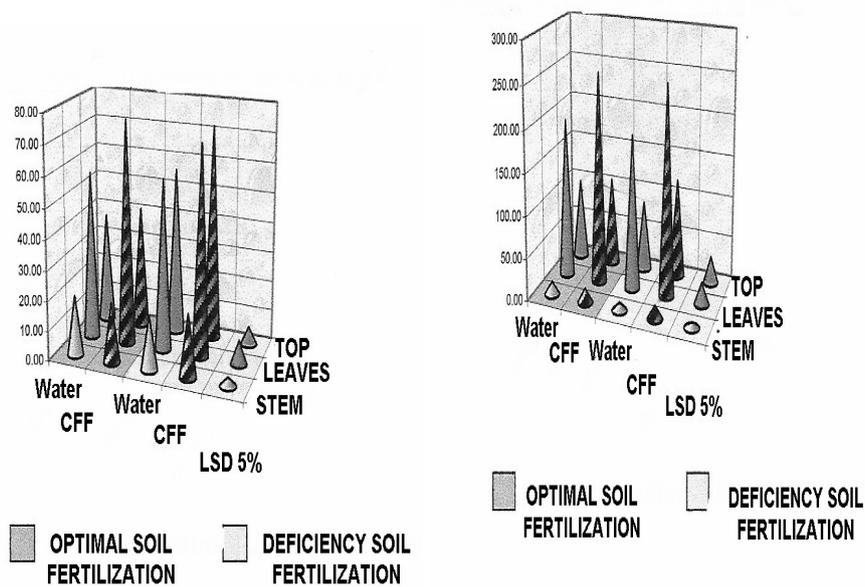


Fig. 4. Influence of CFF application (1.5%), only four leaves on Mn and Fe uptakes in dry matter of the plant organs untouched with CFF

CONCLUSIONS

1. Data obtained in this study confirm the opportunities offered by this method in determination and quantification of and micronutrients penetration and translocation in plants.

ACKNOWLEDGEMENTS

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