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Aspects of the copper on seeds germination of *Capsicum sp*. L.

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Abstract The experiment was performed to study the seed germination and seedling growth in pepper under the influence of different concentrations of copper. The germination %, death seeds, abnormal seeds, normal seeds, sample seeds decreased with increase in copper concentration V1- 10 ppm; 50 ppm; 100 ppm. The copper took place from the structure of some enzymes, which had the role of transforming the superoxide in oxygen and peroxide, named superoxide dismutase, as hemocopper, hepathocopper, cerebrocopper, eritrocopper, citocopper. The copper deficiency was in general a little spreading, in comparison with the deficiency in others heavy metals and affected a small relative number of species. A big concentration of copper in the nutrition environment was toxic for the major of plants. Copper as another heavy metals, had activated as enzymes delayer, limiting the phosphatase activity alkaline, catalase, xantionxidase and ribonuclease. Also, the copper could combine the cellular membranes permeability braving its break.

Key words

copper, death seeds, abnormal seeds, normal seeds, sample seeds

Copper (Cu), though an essential micronutrient for plants, poses toxicity at higher concentrations possibly by inducing oxidative stress. The copper was an essential microelement for plants and animals development, having an important role in hematopoesis and in some enzymes synthesis which participated in general metabolism phases. The copper deficiency traduced through: a slow increase, the weight decrease, the hair and wool depigmentation, defects of hair and wool of keratin infiltration, ragged flakes and anemia, especially to the teenagers. The copper took place from the structure of some enzymes, which had the role of transforming the superoxide in oxygen and peroxide, named superoxide dismutase, as hemocopper, hepathocopper, cerebrocopper, eritrocopper, citocopper. Those enzymes permitted the organism adaptation to aerobiosis and protected them by toxic effects of oxygen. One of the most important function of the copper was the intervention in haemoglobinformation and eritroformation. A level of plasmatic copper of 0.10-0.20 mg/l at the pig was considered the minimum limit for a normal hematopoesis. Such those levels, maintained for a very long time, brought to anemia with terminal ending. The copper deficiency was in general a little spreading, in comparison with the deficiency in others heavy metals and affected a small relative number of species. After soil conditions where it was appeared, the phenomena was known with different names as "amelioration disease" or with some manifestation symptoms "white hag", "fading acme", "blackening".

Material and Method

To realize the experiment were choose one sample (100 seeds/sample) from three populations of *Capsicum sp.* L. Zimand population, Apateu population (AR) and Craiva population.

Experimental variant were: V1- water control; V2- Cu 10 ppm; V3- Cu 50 ppm; V4- Cu 100 ppm. The objective followed was the one of germination establishment of seeds to Zimand population, Apateu population and Craiva population on different copper solutions.

Results and Discussions

Heavy metals had a different effect on germination seeds of *Capsicum sp.*L., to Apateu population (AR) such as it was in fig.1. The delayer effect of copper on germination was obvious to the variant with biggest concentration V2 at which the normal percentage of tread was 50%, abnormal tread 50%, and death seeds were of 0%.

The normal percentage of tread was 20%, the one of abnormal tread 80%, and the another one of death seeds was 0% to the variant with biggest concentration V4, comparative with another variants V2, V1 observing the copper effect on seeds germination.

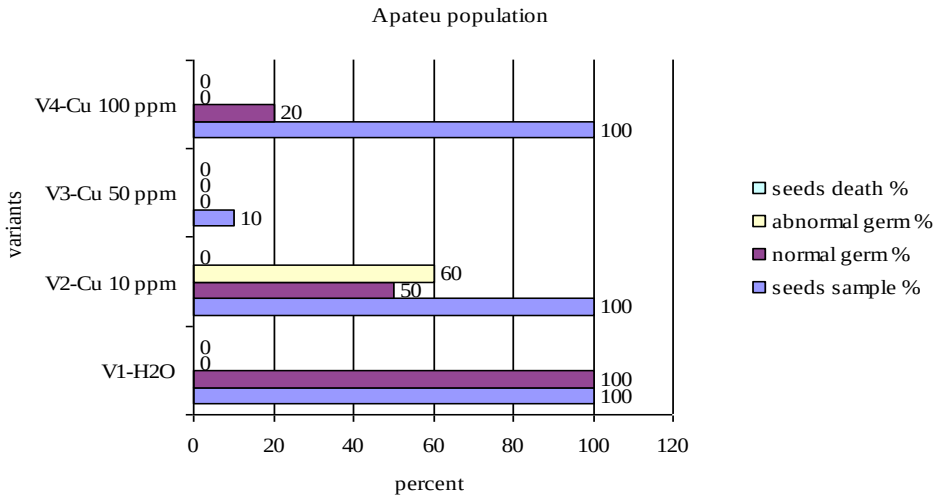

Fig. 1. Copper influence on seeds germination Apateu population of *Capsicum sp*.L.

The seeds germination of *Capsicum sp*..L. to Zimand population that it could be observe in fig.2. The delayer effect of copper on germination was obvious to the variant with the biggest concentration V2 at which the normal tread percentage was 30%, the abnormal tread 50%, and death seeds were 10%. The normal tread percentage was 40%, and the abnormal tread 0%, and the seeds in course of germination 60% was 0% to the variant with biggest concentration V4 100 ppm, comparative with the variant V1 observing thus the effect of copper on seeds germination.

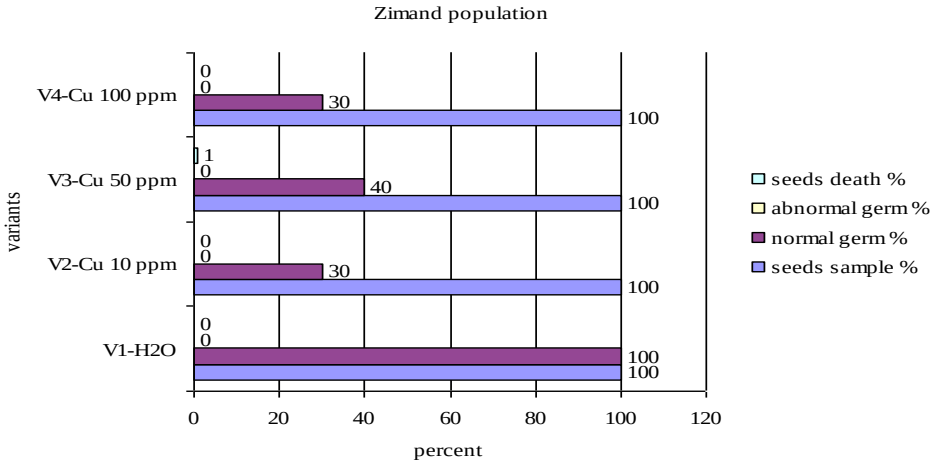

Fig. 2. Copper influence on seeds germination Zimand population of *Capsicum sp.* L.

That it could be observed in fig.3. the copper influenced different germination percentage. Germination was obviously inhibited to the variant with biggest concentration V4 with normal tread percentage 30%, abnormal treat 0%, and death seeds were of 2%, comparative with the another ones.

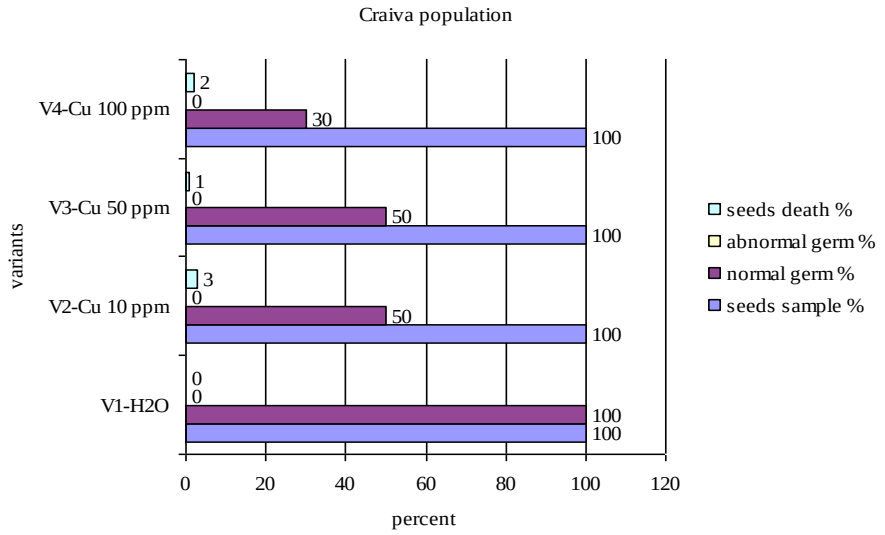

Fig. 3 Copper influence on seeds germination Craiva population of Capsicum sp. L.

To the variant with concentration V2 and V3 the percentage of normal treat was 50% and 50%, the one with abnormal treat 0% and 0%, and the one with death seeds was 10% and 0%. To control variant V1 were observed values of normal treat percentage of 100%.

Conclusions

Copper had different effect on seeds germination of Capsicum sp.L. to Apateu population, Zimand population and Craiva population. The delayer effect of copper on germination was obvious to the variant with biggest concentration V2 at which the normal treat percentage was 50%, at abnormal threat 50%, and death seeds were 0%. The normal treat percentage was 20%, and abnormal treat 80%, the death seeds was 0% to the variant with the biggest concentration V4, comparative with the another variants V2,V1 observing in that way the effect of the copper on seeds germination.

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