

عنوان مقاله:

Effect of iron oxide nanoparticles on maize (Zea mays) plants nutritional value and cell viability of sheep casings

محل انتشار:

اولین کنگره بین المللی شیمی و نانو شیمی از پژوهش تا فناوری (سال: 1397)

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نویسنده:

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خلاصه مقاله:

Nanoparticles (NPs) have emerged as one of the most innovative application in agriculture. There is lack of information about the effects of iron oxide nanoparticles (Fe3O4 NPs) on maize fruit quality. This study aimed to determine possible impacts on chlorophyll, sugar, proteins, mineral nutrients, and antioxidants capacity in the maize plants grown in calcareous soil and sprayed with Fe3O4 NPs and Fe-EDTA at 100 ppm. Vibrating sample magnetometer (VSM) was used to assess the uptake and translocation of Fe3O4 NPs to different plant parts. The effect of kernel extract treated with Fe3O4 NPs and Fe-EDTA on sheep cell viability was also evaluated by ethylthiazol tetrazolium (MTT) assay. Results showed that Fe3O4 NPs increased total chlorophyll and glucose content. There were no significant differences in chlorophyll a, b, and chlorophyll a tob ratio and protein content between Fe3O4 NPs and Fe-EDTA treated plants. Iron treatments especially in form of Fe3O4 NPs decreased anthocyanin content. However, there was no significant difference in flavonoid content between treatments. Moreover, the results showed that Fe3O4 NPs increased total iron and Fe+2 and decreased P content in shoot and kernel. Exposure of sheep cells to the extracts of maize kernel treated with iron treatments significantly increased their viability and this increase was more pronounced when the plants were treated with Fe-EDTA. Finally, treatment of maize plants with Fe3O4 NPs seems to be a simple and cost-effective method of improving the properties of this plant .and enrichment the produced kernel.

کلمات کلیدی:

Cell viability, Fe-EDTA, Fe3O4 nanoparticles, Iron deficiency, Maize

لینک ثابت مقاله در پایگاه سیویلیکا:



