

عنوان مقاله:

(Comparative effects of chitosan and SiO₂ nanoparticles on seed germination of barley (*Hordeum vulgare* L

محل انتشار:

چهارمین کنفرانس بین المللی پژوهشهای کاربردی در علوم کشاورزی (سال: 1395)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

The present study was aimed to investigate the effects of chitosan and SiO₂ nanoparticles (NPs) on germination and growth of barley. A factorial experiment (2×4) was performed based on a completely randomized design in three replications. The experimental factors included the above NPs types with concentrations at 0, 30, 60 and 90 ppm. Seeds were separately soaked for six hours, along with the above concentrations of both types of NPs. The NPs treatments did not show any significant effect on parameters such as Germination Percentage (GP), Germination Rate (GR), Mean Germination Time (MGT), Mean Daily Germination (MDG), seed vigor index II, dry weight of seedling and root. Yet, increase in the concentration of both NPs had significant effects on shoot, seedling, root length, fresh weight of seedling, shoot and root, as well as vigor index I. In most traits, the best concentration of NPs was 30 ppm. Applications of NPs in 90 ppm displayed adverse effects on shoot dry weight, fresh weight of seedling and shoot. Finally, direct exposure to the above mentioned NPs have produced both positive and negative effects on barley growth, so selectivity in applications of NPs is essential

کلمات کلیدی:

Barley, NPs, Chitosan, Germination, SiO₂, Root Growth

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