

Study of Essential Growth Parameters of Onion and Cumin seeds Exposed with a Magnetic Field

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Abstract: *This comparative study investigates the effects of uniform magnetic field exposure on the germination and seedling growth of onion (*Allium cepa* L.) and cumin (*Cuminum cyminum* L.). Magnetic treatment has become a promising eco-friendly pre-sowing technique aimed at improving seed vigor and plant growth. Onion and cumin seeds were subjected to static magnetic fields of varying intensities and exposure times. The results show that both crops responded positively, but the degree of improvement varied. The optimal magnetic exposure resulted in higher germination percentages, roots and shoots length, fresh and dry seedling weights, and increased seedling vigor indices compared to untreated seeds. While onion responded best to a 20 mT field for 60 minutes, cumin showed the highest performance under a 300 mT field for 45 minutes*

Keywords: Magnetic field, Onion, Cumin, Germination, Seedling Vigor Index, Plant Growth