PRIMING OF SEEDS WITH CALCIUM CHLORIDE AND SODIUM NITROPRUSSIDE (NITRIC OXIDE DONOR) IMPROVE THE TOLERANCE OF FENUGREEK (TRIGONELLA FOENUM GRAECUM L.) TO WATER STRESS.

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Abstract - The effects of calcium chloride ($CaCl_2$) and sodium nitroprusside (SNP), an NO donor, on seed germination of fenugreek (Trigonella foenum graecum L.) under water stress were studied. The results showed that priming of seeds with 5 mM $CaCl_2$ and, mostly, with 50 mM SNP for 6 h markedly improved the growth and the development of the seedlings under normal and stressful conditions. In radicles, and under normal conditions, this priming stimulated proteins synthesis and decreased catalase and guaiacol peroxidase. Under stressful conditions, the results showed that plants from chimioprimed seeds are most tolerant. Indeed, these pretreatment alleviated the decrease of the growth, maintained the relative water content (turgidity), increased the chlorophylls and proteins contents and anti-oxydative enzymes activities (catalase and guaiacol peroxydase). Morever, it has not been observed a proline accumulation which demonstrates the absence of stress. Thus, calcium chloride and sodium nitroprusside pretreatments can be used to improve water stress tolerance of cultivated crops.

Keywords - Chimiopriming, seed, fenugreek, water stress