Abstract Submitted
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Influence of plasma treatment on seed germination, growth and stress tolerance[1] TAEIB TOUNEKTI, MUKUL SHARMA, MAJID HAMAD, ZAKA UL ISLAM MUJAHID, HABIB KHEMIRA, Jazan University — The influence of plasma treatment on seed germination properties has been widely studied. However, the response to plasma treatment is not consistent on different species. In this work, we have selected three types of seeds i.e. wheat and sorghum, acacia and grape; to treat them with plasma in comparable conditions. These treatments effects on weight loss, water absorption, germination and stress tolerance were studied. The results show that plasma treatment reduced the weight and improved water absorption in all seeds. The optimum plasma treatment improved the germination of seeds, best in grape seeds, then in acacia and least in wheat and sorghum. In acacia the plasma treatment has comparable improvement to the conventional acid bath. In grape seeds the plasma treatment even increased germination ˜50 % compared to chilling. The mechanism of these improvements was discussed in terms of the type of seed dormancy, seed structure, antioxidant systems and stress tolerance. It appears that plasma treatment etches the surface of the seeds thus facilitating imbibition and causes oxidative stress, which significantly improves the germination of grape and acacia seeds. It can be concluded that the response of seeds to plasma treatment depends on their mechanical and physiological properties.

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