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Radio-frequency plasma capacitor can increase rates of seeds imbibition and germination[1] ALEXANDER VOLKOV, Department of Chemistry, Oakwood University — Cold atmospheric pressure plasma jets are used in agriculture for the treatment of seeds and plants. Here we found that the treatment of seeds by a plasma ball or flat plasma panel can also accelerate seed imbibition, germination, and radicle growing rates. Generated by the plasma lamps, high-frequency electromagnetic fields and photons can penetrate seed coats and modify their surface properties. The plasma ball treatments of seeds produce hydrophilization of seed coats and decrease the apparent contact angle between a water drop and the seed surface, thereby improving the wetting properties of seeds surfaces. High-frequency electromagnetic fields and light emitted by plasma lamps accelerate the germination of seeds. Treatment using a plasma lamp is not as effective as treatment by a cold atmospheric pressure plasma jet. Plasma lamps can be used in agriculture for the acceleration of seed germination, increasing growth of plant seedlings, and corrugation of the bio-tissue surfaces without side effects of reactive oxygen and nitrogen species generated by plasma jets.

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