

Abstract Submitted
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Plant growth promotion using radical-activated L-alanine solution¹ GINJI ITO, Meijo University, NAOYUKI IWATA, HIROSHI HASHIZUME, MASARU HORI, Nagoya University, MASAFUMI ITO, Meijo University — Recently, biological applications of atmospheric-pressure plasmas have been studied. In particular, the promotion of plant growth using non-equilibrium plasmas has attracted much attention as an inexpensive and safe method without chemicals. Previously, we reported that the radical treatment of phosphate buffer solutions containing L-phenylalanine simultaneously showed bactericidal and plant-growth-promotion effects, and the length of radish sprouts was promoted nearly two times. In this study, L-alanine, which has a very similar structure to L-phenylalanine but without the benzene ring, was treated by radical irradiation to find an important chemical structure in L-phenylalanine for the plant-growth promotion. The experiments were performed in a similar manner to those in the previous study. 20 germinated radish sprouts were cultured in the radical-activated L-alanine solutions for 48 h at a temperature of 22 ° and a humidity of 60 % using an artificial environmental controller. Subsequently, the lengths of radish sprouts were measured. As a result, there was no significant promotion of sprouts, and therefore the benzene ring structure of L-phenylalanine was found to be an important factor in the plant-growth-promotion effect of radical-activated L-phenylalanine.

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