

Abstract Submitted
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Calcium oxalate syntheses in a solution containing glucose by the atmospheric pressure plasma irradiation NAOYUKI KURAKE, HIROMASA TANAKA, KENJI ISHIKAWA, KAE NAKAMURA, HIROAKI KAJIYAMA, FUMITAKA KIKKAWA, MASAOKI MIZUNO, Nagoya University, YOKO YAMANISHI, Kyusyu University, MASARU HORI, Nagoya University — The non-equilibrium atmospheric pressure plasma (NEAPP) has been attracted attention because of its characteristic high reactivity even in a low temperature so that various phenomena by the NEAPP such as a sterilization, growth promotion and so forth have been reported around the world. Previously, we reported the NEAPP irradiation generated the calcium oxalate crystals in the medium, which contains 31 kinds of organics and inorganics. The Dulbecco's Modified Eagle Medium (DMEM) which was used in previous study is composed of no oxalate. Interestingly, not only crystallization but also synthesis of the oxalate was occurred by the NEAPP irradiation. Also the crystallization details were analyzed with the X-ray diffraction (XRD). In this study, we have clarified the mechanism on the crystallization due that D-glucose, calcium ion and bicarbonate ions are minimum essential components. The oxalate synthesis was proved by the gas chromatography and mass spectrometer (GC-MS). Finally, we conclude that a supersaturation of oxalic acid synthesized in those 3 species by the NEAPP.

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