

Abstract Submitted  
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**The injection of a highly focused microjet into a soft target<sup>1</sup>**

NANAMI ENDO, SENNOSUKE KAWAMOTO, YOSHIYUKI TAGAWA, Tokyo Univ of Agri Tech — Needle-free drug injection systems have been developed in order to supersede traditional syringe injection system with needles. However, in spite of its great potential, these systems are not commonly used. One of the main reasons is to use diffusive jets, which results in severe deceleration of the jets and causes insufficient penetration. Recently, a highly focused microjet generated by irradiating a laser pulse to a point inside a liquid filled in a capillary tube is gathering attention as a method to solve these problems. Although the microjet injection phenomena into a model material of the skin have been studied, the effect of the distance  $R$  ( $R$  is a distance between a gas-liquid interface and a target) on injection phenomena have not been researched. The distance  $R$  is not a parameter which controls the jet generation. However, considering the practical use of the needle-free injection, it is necessary to know appropriate value of the distance  $R$ . In this study, we change the distance  $R$  in a range of 0.3 mm to 5 mm to investigate its influence on the injection depth  $D_i$ . As a target, we used 5 wt% gelatin. We show relationship between injection depth  $D_i$  and distance  $R$  and rationalize it in this presentation.

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