Tohoku Univ. Technology

Injection device of liquid containing active species and sterilization & extermination method

Avoid temperature rise of the injection device due to plasma and maintain a high sterilization effect

Overview

Injection device of liquid with active species have been developed in order to disinfect and extermine pathogens and pests using plasma. This device is configured to create plasma to generate the active species, and to inject the liquid containing the active species through a jet. However, the heat of plasma raises temperature of the liquid in the reaction vessel, and the short-lived active species may be deactivated if the plasma discharge time is too long so the sterilization effect may be reduced.

This invention can provide an injection device of liquid containing active species and sterilization & extermination method that can maintain a high disinfection effect even when the plasma discharge time is long. This invention has a dissolution injection means containing active species which is obtained by dissolving plasma-active gas into liquid and a cooling means to prevent the temperature rise in order to maintain a high sterilization effect.

Effect・Application

Avoid temperature rise due to plasma of the injection device of liquid containing active species

Maintain high sterilization effect even for a long plasma discharge time

- Disinfection and sterilization of medical instruments and organisms, etc.
- Disinfecting and eliminating pathogens and pests attached to plants, soil, fertilizers, etc.

IP Data

IP No.	:	2020-130085
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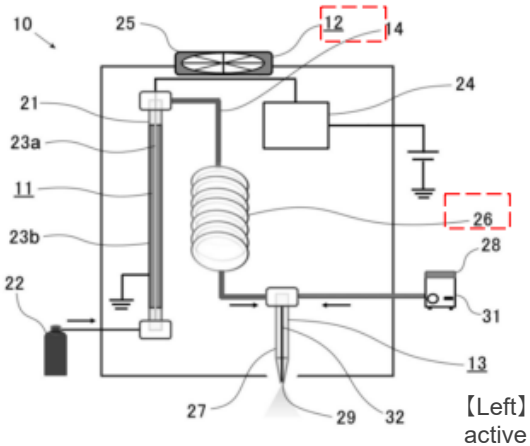
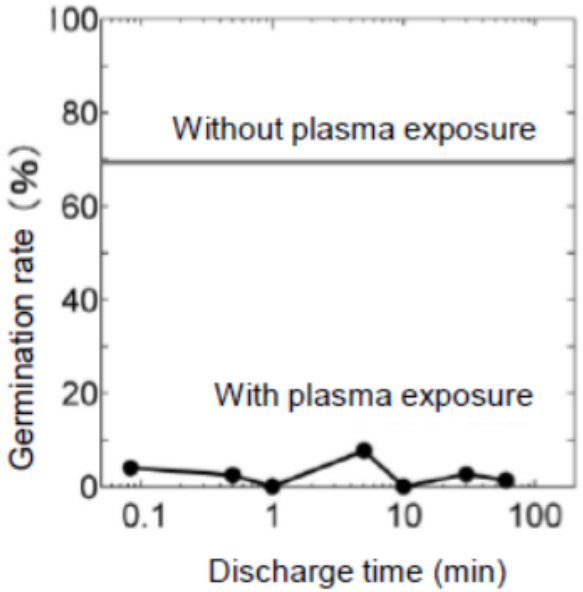


10.Injection device of liquid containing active species 11.Plasma generator 12. Cooling 13.Dissolution injection 14.Gas flow path 21.Reaction vessel 22.Gas supply 23 a/b Electrode 24.Power supply 25.Cooling fan 26.Cooling circuit 27.Dissolving vessel 28.Liquid feeder 29.Jet 31.Liquid pump 32.Tube 40.External mixing nozzle 41.Jet 42.Gas outlet

【Left】Injection device of liquid containing active species overall structure

Features・Outstandings



【Above】Relation between the discharge time in the plasma generator and the germination rate of Colletotrichum gloeosporioides conidia of strawberry anthracnose disease

Contact

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