

Dinitrogen pentoxide generator

- **N₂O₅ generators** capable of **sterilizing, killing viruses** and **enhancing plant immunity**
- **N₂O₅** can be generated **safely** and **reasonable**.

Overview

- Conventional N₂O₅ generator is **difficult to handle** because of **the need for hazardous raw materials and complicated equipment**, which makes industrial N₂O₅ utilization difficult.
- Since **the invention succeeded in using Air as the raw material gas**, it became possible to **generate N₂O₅ reasonable and safety**.
- It is expected to solve the problems of conventional light and heat sterilization methods and virus inactivation methods, so on.

<Application example>

Enhancement of plant immunity

⇒ Expression of disease resistance genes in plants

Application of fertilizer components

⇒ Promotion of plant growth by supplying nitrogen components

Sterilization and virus removal

⇒ Sterilization and virus removal by N₂O₅

Product Application of the invention

- N₂O₅ generator

IP Date

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Performance, features, etc.

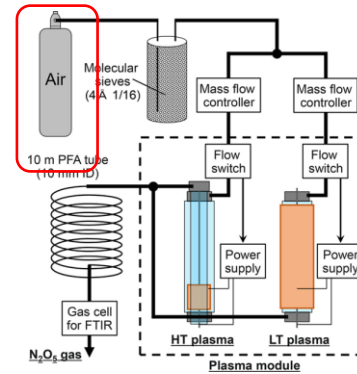


Fig 1. N₂O₅ generator

< Conventional methods >
 Sulfuric acid and nitric acid are needed
 ⇒ Hazardous and difficult to handle

< Invention >
N₂O₅ is generated by Air
 ⇒ Reasonable and Safe

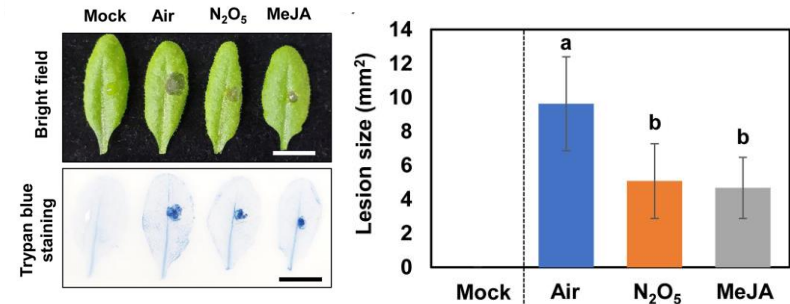


Fig 2. The result of plant immunity test

- Leaves inoculated with Botrytis bacteria were exposed to Air, N₂O₅, and MeJA*.
 - The lesion area of N₂O₅ was similar to MeJA
- ⇒ **Exposure to N₂O₅ makes plants less susceptible to disease**

*MeJA...methyl jasmonate

Related literature

[1] S.Sasaki, K.Takashima, T.Kaneko *Ind. Eng. Chem. Res.* 2021, **60**, 1, 798–801
 [2] D. Tsukidate, K. Takashima, S. Sasaki, S. Miyashita, T Kaneko, H.Takahashi, S. Ando, *PLOS ONE* 17 (2022) e0269863

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