

**Topic/Title (Norwegian)**

Diagnostikk og bekjempelse av virus i resirkulert næringsløsning i agurk veksthusdyrking

**Topic/Title (English)**

Diagnosis and control of viruses in recycled nutrient solution in greenhouse cucumber cultivation

**Picture**



Cucumber leaves infected with cucumber green mottle mosaic virus, CGMMV (photo: Erling Fløistad, NIBIO))

**Summary** (Describe the topic/thesis, type of thesis work: field work, laboratory work, literature study)

Implementing nutrient solution recycling in cucumber production within greenhouses is an effective measure for minimizing water and nutrient emissions. However, this practice carries the risk of spreading severe viruses, such as Cucumber Green Mottle Mosaic Virus (CGMMV), within greenhouse environments. This risk demands further evaluation in Norway.

CGMMV, a highly contagious virus in cucumbers, exhibits stability and spreads easily through seeds, water, soil, and plant tissues. Consequently, combating CGMMV presents a significant challenge. The current applied methods like UV treatment and heating might not be sufficient to deactivate the persistent viruses like *Tobamovirus*.

This project aims to assess the efficacy of disinfection methods concerning CGMMV spread and infectivity, focusing on two main objectives: 1) Developing a more dependable virus detection method in nutrient solutions. 2) Investigating the effectiveness of disinfection techniques involving UV light and heating in eradicating viruses from nutrient solutions.

The project will encompass field sample collection, laboratory experiments, and extensive literature review.

**Subject area** (keywords)

Virus, cucumber, greenhouse production



Bachelor or Master thesis BIOVIT 2023/24

**Language thesis** (Norwegian and/or English)

English

**Bachelor or Master thesis**

Master thesis

**Credits**

60 credits

**Project period**

01.01.2024-31.12.2025

**Project/company**

NIBIO, Division of Biotechnology and Plant Health

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