

# **FUNGAL COMPOSITION BELONGING PYTHIACEAE CAUSING ROOT ROT DISEASE ON CITRUS IN QUANG NINH PROVINCE, VIETNAM**

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## **Summary**

Citrus are widely grown all over the world, and generates hundreds of billions of dollars in revenue each year. Citrus species have been also cultivated popularly in Vietnam for the high economic efficiency. However, root rot disease has caused significant damage in citrus trees in many countries, including Vietnam. In this study, fungal composition belonging Pythiaceae was isolated from soil and disease root by baiting method. The morphology, taxonomy and pathogenicity of the pathogens causing root rot disease in citrus in Quang Ninh province, Vietnam were investigated. From ITS1 and ITS4 sequence analysis, the fungi of Pythiaceae causing root rot disease in citrus were identified as *Phytophthora palmivora*, *Phytopythium vexans*, *Phytopythium helicoides*, *Pythium cucurbitacearum* and *Phytopythium chamaehyphon*. These species were pathogenic in inoculation trials using detached leaves and seedlings. The pathogenicity of these isolates was varied and divided into 4 groups: very strong (3 isolates), strong (6 isolates), average (1 isolates) and weak (1 isolates). Three isolates (QN727, QN729 and QN734) with very strong pathogenicity are all belong to *Phytophthora palmivora*, causing root rot disease in citrus very common, so further research is needed to manage the disease.

**Keywords:** *Citrus*, *root rot*, *Phytophthora*, *Phytopythium*, *Pythium*.