

**NGHIÊN CỨU PHƯƠNG PHÁP ĐỂ KÍCH THÍCH SINH SẢN HỮU TÍNH CỦA
Phyllosticta citricarpa TÁC NHÂN GÂY BỆNH ĐÓM ĐEN TRÊN CÂY CÓ MÙI,
TRONG ĐIỀU KIỆN THÍ NGHIỆM**

**Study on Technique to Induce Sexual Reproduction of
Phyllosticta citricarpa, The Causal Agent of Citrus Black Spot
under Laboratory and Shadehouse Conditions**

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Abstract

Citrus black spot (*Phyllosticta citricarpa*) causes fruit blemishes and premature fruit drop resulting in significant economic losses in hot and humid citrus growing areas worldwide. The sexual cycle producing ascospores have been well-documented to play an important role in the disease epidemiology, although no concrete evidence has been provided due to failures in producing the sexual spores under controlled conditions. The mating type locus of *P. citricarpa* has recently been characterised revealing *P. citricarpa* being heterothallic, meaning that the fungus requires interactions of isolates carrying complementary mating genes to undergo sexual reproduction. In the present study, mating type identification of eight *P. citricarpa* isolates was done by PCR using published primers. We confirmed that single *P. citricarpa* isolate was either *MAT1-1* or *MAT1-2*. We then tested methods involving pairing *P. citricarpa* isolates of different mating types on autoclaved lemon leaf discs and orange seedlings. Although sexual cycle of *P. citricarpa* was not successfully induced, we found that the fungal mycelia avoided growing into each other which can be indicative of vegetative incompatibility. Further studies to produce sexual structures of *P. citricarpa in vitro* could focus on alternative means, for example spermatisation, through which fertilisation occur to initiate the mating process.

Keywords: *Phyllosticta citricarpa*, incompatibility, spermatisation, heterothallism

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