

**Title** Potential of the volatile-producing fungus *Nodulisporium* sp. CF016 for the control of postharvest diseases of apple

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#### **Abstract**

In vitro and in vivo mycofumigation effects of the volatile-producing fungus *Nodulisporium* sp. CF016 isolated from stem of *Cinnamomum loureirii* and the role of its volatile compounds were investigated against phytopathogenic fungi. The volatile compounds produced by *Nodulisporium* sp. CF016 inhibited and killed a wide range of plant and storage pathogens including to *Pythium ultimum*, *Rhizoctonia solani*, *Fusarium oxysporum*, *Phytophthora capsici*, *Sclerotinia sclerotiorum*, *Colletotrichum coccodes*, *Magnaporthe oryzae*, *Alternaria panax*, *Botrytis cinerea* and *Penicillium expansum*. Mycofumigation with wheat bran-rice hull cultures of *Nodulisporium* sp. CF016 showed in vivo antifungal activity against gray mold caused by *B. cinerea* and blue mold caused by *P. expansum* of apple. The most abundant volatile compound produced by *Nodulisporium* sp. CF016 was  $\beta$ -elemene followed by 1-methyl-1,4-cyclo-hexadiene,  $\beta$ -selinene and  $\alpha$ -selinene. *Nodulisporium* sp. CF016 could be an attractive mycofumigant in controlling postharvest diseases of various fruits including apple.