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Nidularia pulvinata (Planchon) (Hemiptera: Kermesidae) urban outbreaks associated with entomopathogenic fungi

ABSTRACT

Pest outbreaks often give to insect pathogens the opportunity to infect their host species eventually leading them to death. Recent *Nidularia* outbreaks off urban *Quercus ilex* L. showed some cases of entomopathogenic fungi virulence, apparently sustained by species of *Fusarium* and other fungi. Infection is apparent on the *Nidularia* population because fungi provoke the scale color shifting to orange or dull-green in medium in large patches. After the isolation in an axenic culture of the Kermesid-associate Mycota, ITS genomic regions amplified by PCR using the universal ITS5/ITS4 primers were sequenced by external service (Macrogen, Seoul, South Korea) for molecular identification. Blast analysis (http://blast. ncbi. nlm. nih. gov/Blast. cgi) of the ITS sequence showed a high homology with *Quambalaria cyanescens* (de Hoog & G. A. de Vries) Z. W. de Beer, Begerow & R. Bauer 2006 (Fungi: Basidiomycota), (identity: 97-96%; e-value 0. 0; coverage 82-75%), *Fusarium acuminatum* Ellis & Everh. 1895 (Fungi: Ascomycota) and *Fusarium avenaceum* (Fr.) Sacc. 1886 (Fungi: Ascomycota) (identity: 99%; e-value 0. 0; coverage 82-80%), and *Penicillium sumatraense* Svilv. 1936 (Fungi: Ascomycota) (identity: 100%; e-value . 0; coverage 95-91%). We investigate the biological and ecological role of the above-recorded fungi by correlating the age of infected scale and their age. Mass culturing of the most promising pathogen will lead to semi-field trials to demonstrate the isolate entomopathogenic ability.

Finally, we discuss the case of homonymy between the fungal Taxon named *Nidularia pulvinata* (Schwein.) (Gasteromycetes) and the scale *Nidularia pulvinata* (Planchon) that can lead to some confusion.

Keywords: urban greenery, urban entomology, entomopathogenic opportunistic fungi.

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