

The use of MALDI-TOF mass spectrometry for fast and reliable identification of ocular infection caused by *Purpureocillium lilacinum* natural nematocide

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INTRODUCTION. The hyphomycete genus *Paecilomyces* was introduced by Bainier in 1907. Base on phylogenetic studies classification of Paecilomycetes has underwent some major reclassification. As a result of this studies *P. lilacinus* has been reclassified and renamed as *Purpureocillium lilacinum*. One of the major problems in plantation of crops and vegetables are nematodes. Nematodes feed damage the plant roots and reduce the water and nutrient uptake. It is difficult to control these nematodes with common chemical pesticides. Nematophagous fungus, *P. lilacinum* is capable of parasiting nematode eggs, juvenile and females, and thus reduces the plant parasitic nematode population in the soil. Paecilomyces species are common environmental moulds and are seldom associated with human infection. However, the species, *P. variotii*, *P. marquandii*, *P. lilacinus* are emerging as causative agents of mycotic keratitis and of hyalohyphomycosis in the immunocompromised patient. From medical point of view it is important to note that, unlike *P. variotti*, *P. lilacinum* is not susceptible to amphothericine B and so-called old triazoles (fluconazole, itraconazole) and susceptible to voriconazole, posaconazole, ravaconazole. In this study we present a case of *P. lilacinum* keratitis in contact lenses user.

A 51-year-old male patient, was admitted to the hospital due to exacerbation of the left eye uveitis of the fungal etiology to intensify the treatment.

The patient was initially treated for corneal ulcers of fungal etiology. Then he underwent a corneal transplant due to perforation in the course of ulceration.

After surgery, inflammation of the anterior uveitis with the presence of iris bumps and neovascular membrane on the surface of the iris and lens and rapidly progressive cataract was observed. Four months later a cataract surgery, with an implant placement, was performed.

After a few days, the presence of intense inflammatory effusion in the anterior chamber which did not respond to anti-inflammatory treatment and increased exudate in the vitreous body was found. Antifungal treatment with voriconazole and anti-inflammatory treatment (locally and generally) was continued. In the absence of improvement vitrectomy was performed with collection of material for microbiological tests. Clinical specimen fluid from the anterior chamber of eyeball were cultured on liquid Sabouraud and Sachaedler agar with vitamin K. Specimen were also collected for direct microscopic examination, which revealed presence of hyphae. The same day inflammatory membrane from the surface of the lens were collected and

cultured as described above. After five days growth was observed in Sabouraud medium. Cultured fungus was identified as *P. lilacinus* based on the MADLI-TOF mass spectrometry and its macroscopic and microscopic examination of hyphae and conidiophores. Along with the identification drug susceptibility were performed on RPMI medium. MIC values were determined for: voriconazole, itroconazole, amphothericin B.

RESULTS. MALDI-TOF MS identification confirmed the presence of *P. lilacinus*. MIC for voriconazole, itraconazole and amphothericin B of the isolated strain of *P. lilacinus* were: 0.032 mg/L (susceptible), 32.0 mg/L (resistant), 32.0 mg/L (resistant), respectively. The patient was successfully treated with voriconazole.

CONCLUSIONS. To our knowledge it is the first case of *P. lilacinus* ocular infection reported in Poland. MALDI-TOF MS provides fast and reliable identification of *P. lilacinus* in case of ocular infection and allow fast implantation of appropriate empiric antifungal treatment.