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Letter to the Editor

An accurate identification of *Pythium insidiosum* complex using MALDI-TOF, requires representative spectra of each of its four phylogenetic clusters

On June 15 2019, a case report appeared in the online edition of International Journal of Infectious Diseases (IJID) by Bernheim et al. (2019). In the report, the authors described the management of a keratitis case caused by *Pythium insidiosum* in a man from Spain. The diagnosis was made through molecular methodologies, but no DNA sequences were deposited at GenBank. The isolation of "a large mycelium" on Brain-Heart-Infusion (BHI) was mentioned, but the isolate was not deposited at a culture collection. Although an eye biopsy using pan-fungal primers identified the organism in the biopsied tissue as *P. insidiosum*, there was not a description on how the isolate recovered from BHI was finally identified as *P. insidiosum*.

It is important to mention that two papers using the MALDI-TOF approach to identify *P. insidiosum* from clinical samples, missed by Bernheim et al. (2019), appeared in the last two years (Krajaejun et al., 2018; Mani et al., 2019). These papers highlighted the importance of MALDI-TOF in the identification of submerged filamentous colonies from cases of superficial or systemic suspected pythiosis infections in humans and animals. Oddly, one of the two research papers appeared in IJID, 2018 Vol 77, pages 61–67 (Krajaejun et al., 2018).

We find the statement by Bernheim et al. on the use of a MALDI-TOF spectrum from a single *P. insidiosum* (if the recovered isolate was indeed *P. insidiosum*) isolate misleading. We based our argument on the findings of Mani et al. (2019). These investigators, using MALDI-TOF, tested 52 *P. insidiosum* isolates from all over the world and concluded that for an accurate identification of *P. insidiosum* complex, MALDI-TOF should include the spectra of each of the different phylogenetic clusters reported earlier by Schurko et al. (2003). Krajaejun et al. (2018) (see above) concluded also that the inclusion of at least a member of each of the phylogenetic clusters is of fundamental importance for an accurate identification of *P. insidiosum* complex. Thus, Bernheim et al. (2019) was not the first report suggesting this approach for the identification of *P. insidiosum* and, based on early findings (Krajaejun et al., 2018; Mani et al., 2019), a spectrum generated from a single *P. insidiosum* isolate would likely generate a large number of false negatives.

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Conflict of interest

No conflict of interest to declare.

Ethical approval

Not required

References

Bernheim D, Dupont D, Aptel F, Dard C, Chiquet C, Normand AC, et al. Pythiosis: case report leading to new features in clinical and diagnostic management of this fungal-like infection. Int J Infect Dis 2019;(June), doi:http://dx.doi.org/10.1016/j.ijid.2019.06.011 S1201-9712(19)30256-5.

Krajaejun T, Lohnoo T, Jittorntam P, Srimongkol A, Kumsang Y, Yingyong W, et al. Assessment of matrix-assisted laser desorption ionization-time of flight mass spectrometry for identification and biotyping of the pathogenic oomycete *Pythium insidiosum*. Int J Infect Dis 2018;77:61–7, doi:http://dx.doi.org/10.1016/j.ijid.2018.09.006 [Epub 12 September 2018].

Mani R, Vilela R, Kettler N, Chilvers MI, Mendoza L. Identification of *Pythium insidiosum* complex by matrix-assisted laser desorption ionization-time of flight mass spectrometry. J Med Microbiol 2019;68:574–84, doi:http://dx.doi.org/10.1099/jmm.0.000941 [Epub 8 February 2019].

Schurko AM, Mendoza L, Lévesque CA, Désaulniers NL, de Cock AW, Klassen GR. A molecular phylogeny of *Pythium insidiosum*. Mycol Res 2003;107:537–44.

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