

***Fusarium musae* crossing the ocean and the 'kingdom' borders**

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Fusarium musae causes crown rot in banana fruits and keratitis and nail infections in humans. Immunocompromised patients may also suffer from life-threatening systemic infections. A survey of the distribution of *F. musae* on bananas sold in the market of Milano in 2022/2023 was carried out and confirmed the presence of *F. musae* on bananas shipped from various producing countries. To characterize *F. musae* isolates, 19 strains isolated from banana fruits and human patients were analysed for their azole resistance profile and ability to cause disease on bananas and on *Galleria mellonella* (used as 'human proxy'). We confirmed that *F. musae* can cause disease on both hosts, but we also showed a diverse level of virulence potential of some strains in dependence of the host, suggesting the possible existence of genetic factors favouring host specificity. To investigate this diversity, the genome of two representative strains was assembled and comparatively analysed. Moreover, the mitogenome of the 19 strains was assembled and annotated, showing that identical mitogenomes are associated with banana and human infections. This suggests that *F. musae* is a cross-kingdom pathogen and that bananas are likely to act as carriers for human infections.