Nα-methyl coprogen B, a potential marker of the airway colonization by Scedosporium apiospermum in patients with cystic fibrosis

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Résumé en anglais	Scedosporium apiospermum is an emerging pathogen colonizing the airways of patients with cystic fibrosis (CF). While usually responsible for chronic colonization without clinical signs, this fungus may cause severe and often lethal infections in lung transplant recipients. Early diagnosis of its airway colonization and appropriate treatment are required to eradicate the fungus when a lung transplantation is planned. Here we propose an alternative to mycological examination of sputum samples based on extraction of siderophores by chromatography on Amberlite XAD-4, followed by high performance liquid chromatography analysis of the siderophore extract. Improvement of the extraction procedure was performed in a fractional factorial design which revealed the importance of prior ammonium sulfate precipitation of the proteins, alkalinization of the obtained solution and stirring during extraction. In order to verify the specificity of Nα-methyl coprogen B for S. apiospermum, the method was applied on culture supernatants of different filamentous fungi colonizing the airways of CF patients, including some aspergilli and Exophiala dermatitidis. Nα-methyl coprogen B was detected exclusively for species of the S. apiospermum complex. Likewise, sputum samples from colonized and non-colonized CF patients were analyzed, and the siderophore was detected exclusively in three out of the five specimens which were found by culture to contain S. apiospermum. Together these results confirmed Nα-methyl coprogen B as a marker of the airway colonization by species of the S. apiospermum complex.
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