

P2168 Triazole resistance prevalence in *Aspergillus fumigatus* in Mexico and Peru

Agustin Resendiz Sharpe*¹, Beatriz Bustamante², Rita Merckx¹, Jan Jacobs³, Johan Maertens^{1,4}, Paul E. Verweij⁵, Katrien Lagrou^{1,6}

¹ Department of Microbiology and Immunology, KU Leuven, Leuven, Belgium, ² Instituto de Medicina Tropical Alexander von Humboldt, Cayetano Heredia University, Lima, Peru, ³ Department of Clinical Sciences, Institute of Tropical Medicine, Antwerpen, Belgium, ⁴ Department of Hematology, University Hospitals Leuven / UZ Leuven, Leuven, Belgium, ⁵ Department of Medical Microbiology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands, ⁶ Department of Laboratory Medicine and National Reference Centre for Mycosis, University Hospitals Leuven / UZ Leuven, Leuven, Belgium

Background: Triazole-antifungal treatment, the recommended first-line treatment for aspergillosis, is threatened since triazole-resistance has been reported increasingly in *Aspergillus fumigatus*. Infection by resistant isolates not only occurs during triazole-treatments but also by inhalation of resistant spores from the environment. Recently, an international expert consensus proposed modifications to the first-line treatment of invasive aspergillosis in centers with >10% environmental-resistance prevalence. As in most Latin-American countries resistance prevalence is unknown, we aim to determine the prevalence of environmental triazole-resistant *A. fumigatus* in Mexico and Peru

Materials/methods: 298 soil samples (198 Mexico, 106 Peru) were screened using Sabouraud agar without and with itraconazole (4mg/L) and voriconazole (2mg/L). Isolates were characterized as *A. fumigatus sensu-stricto* via MALDI-TOF mass spectrometry. Resistant phenotype was confirmed using the broth microdilution reference method of the European Committee on Antimicrobial Susceptibility testing (EUCAST) if at least one MIC (minimal inhibitory concentration) value was above the EUCAST resistance clinical breakpoint (voriconazole >2, itraconazole >2, posaconazole >0.25, mg/L). Resistance mechanisms were determined by *Cyp57A* gene sequencing.

Results: Screening results per country are depicted in Table 1. Among all *A. fumigatus* isolates, a prevalence of 6.9% (n=7/102, [CI95% =3.1-13.7%]; flowerbed=3, commercial-soil=2, park=1, greenhouse=1) in Mexico and 9.8% (n=6/61, [CI95% =4.2-20%]; agricultural field=3, flowerbed=1, commercial-soil=1, park=1) in Peru was found. Resistance was associated with TR₃₄/L98H and TR₄₆/Y121F/T289A mutations in all but one resistant isolates.

Table 1. Environmental triazole-resistant *A. fumigatus* screening, Mexico and Peru.

			[Me xico] {.und erlin e}	[Pe ru]{. under line}				
			Num ber	Pre valen ce on all sampl es (%)	Pre valen ce in <i>A. fumig atus</i> posit ive-s ample s	Num ber	Pre valen ce on all sampl es (%)	Pre valen ce in <i>A. fumig atus</i> posit ive-s ample s
Sampl es teste d		198			106			
Growt h any fungi		173	87.4		87	82.1		
Isola tion <i>A. fumig atus</i>		102	51.5		61	57.5		
Triaz ole-r esist ant <i>A. fumig atus</i>		7	3.5	6.9	6	5.6	9.8	
<i>cyp5 1A</i> <i>gene</i> mutat ion	TR ₃₄ /L98 H		4	2	3.9	5	4.7	8.2
	TR ₃₄ /L98 H/S29 7T/F4 95I	1	0.5	1	1	0.9	1.6	
	TR ₄₆ /Y12 1F/T2 89A	1	0.5	1	0	0	0	
	None	1	0.5	1	0	0	0	

Conclusions: For the first time triazole-resistant *A. fumigatus* was found in soil samples in Mexico and Peru. Our findings emphasize the need to perform resistance screening in clinical settings in these countries.

29TH ECCMID
13-16 APRIL 2019 AMSTERDAM, NETHERLANDS
POWERED BY M-ANAGE.COM

