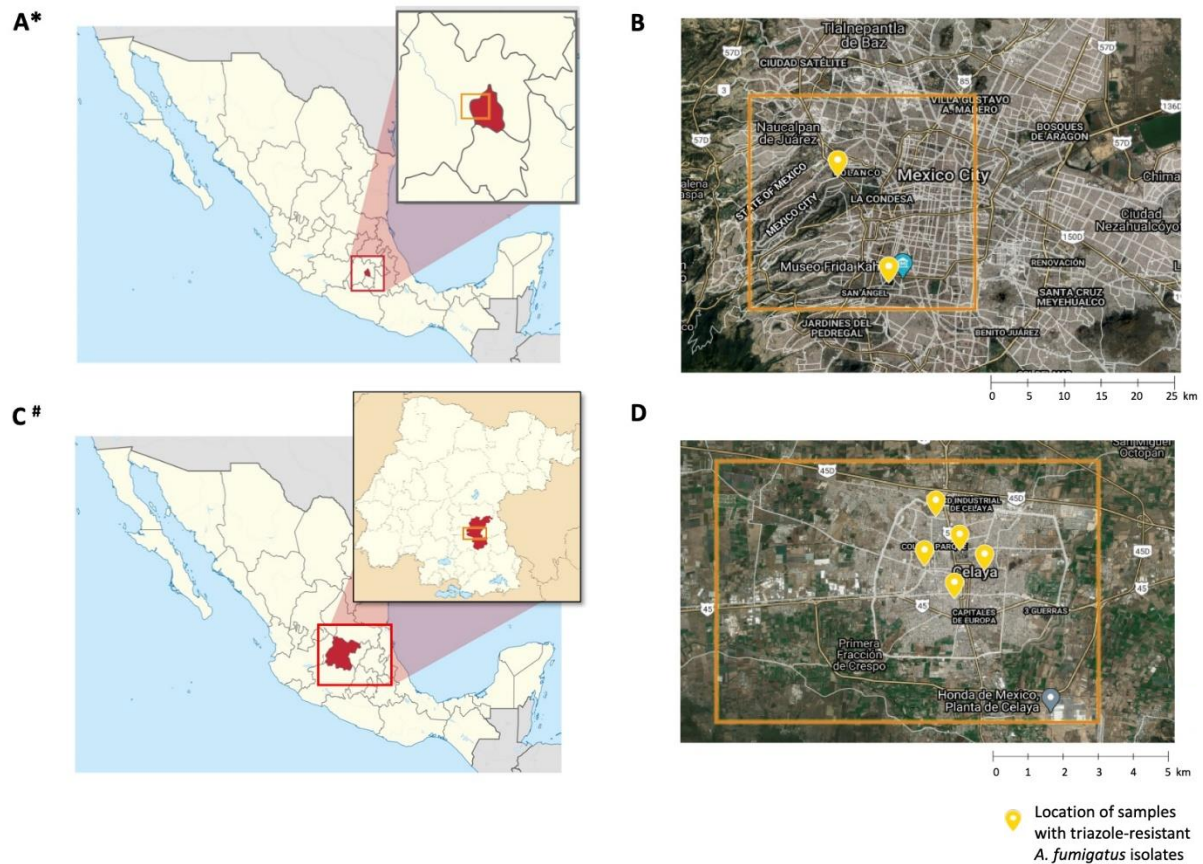


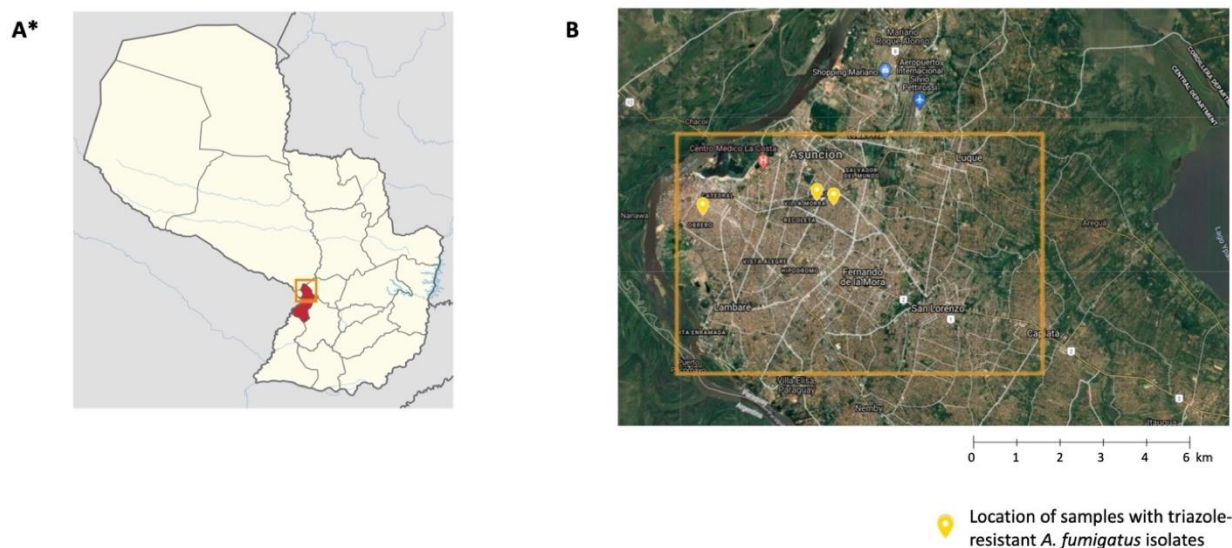
## Supplementary Material



**Figure S1.- Regions of Mexico screened for triazole-resistant *Aspergillus fumigatus*.** Representative images portraying Mexico's geographical distribution by states accentuating in red the analyzed region of **A)** Mexico City and **C)** the state of Guanajuato; and screened locations situated within the yellowed-squared area. The location of samples with triazole-resistant *A. fumigatus* isolates in the metropolitan area of **B)** Mexico City and **D)** Guanajuato in the screened regions are marked in yellow.

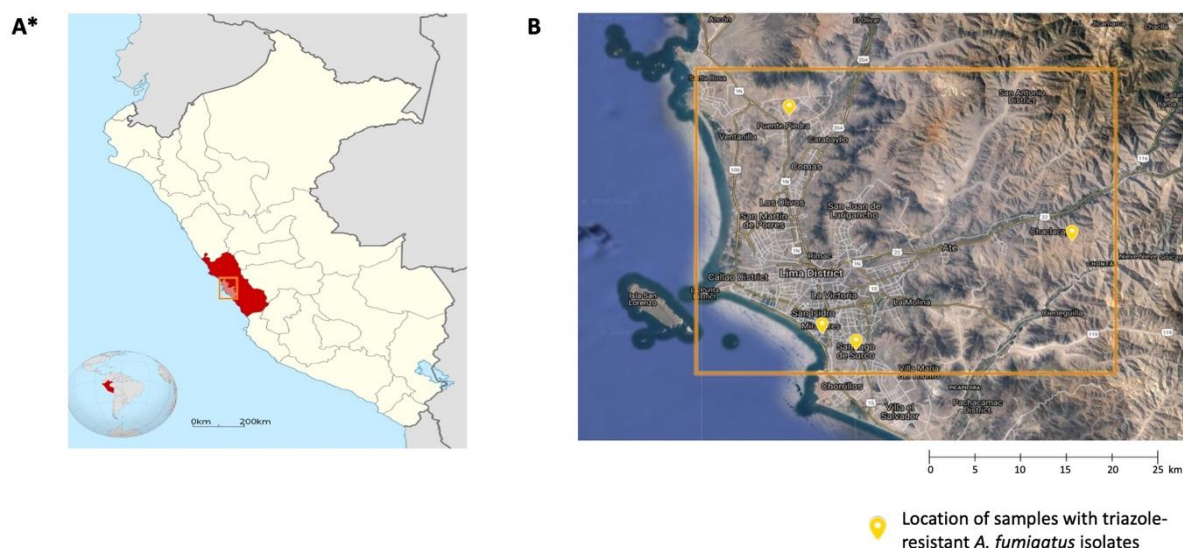
\* This vector image includes elements that have been taken or adapted from the publicly available file: Mexico (city) in Mexico (zoom).svg (by TUBS), August 2011, retrieved 18:17, January 1, 2021, from [https://commons.wikimedia.org/wiki/File:Mexico\\_\(city\)\\_in\\_Mexico\\_\(zoom\).svg#globalusage](https://commons.wikimedia.org/wiki/File:Mexico_(city)_in_Mexico_(zoom).svg#globalusage).

# This vector image includes elements that have been taken or adapted from the publicly available file: Guanajuato in Mexico (location map scheme).svg (by TUBS), August 2011, retrieved 18:17, January 1, 2021, from [https://commons.wikimedia.org/wiki/File:Mexico\\_\(city\)\\_in\\_Mexico\\_\(zoom\).svg#globalusage](https://commons.wikimedia.org/wiki/File:Mexico_(city)_in_Mexico_(zoom).svg#globalusage).



**Figure S2.- Paraguay environmental screening regions.** **A)** Paraguay's administrative regions accentuating in red the capital district in addition to the screened region (yellow-squared area). **B)** The location of samples with triazole-resistant *A. fumigatus* isolates within the screened regions are marked in yellow.

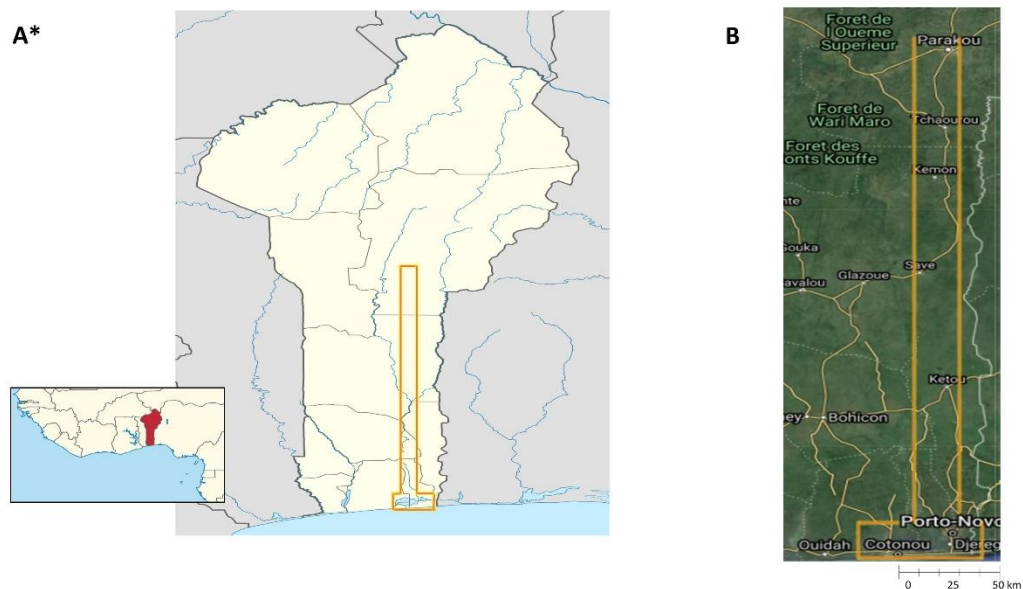
\* This vector image includes elements that have been taken or adapted from the publicly available file: Central in Paraguay.svg (by TUBS), November 16, 2011. retrieved 14:38, January 12, 2021, from [https://commons.wikimedia.org/wiki/File:Central\\_in\\_Paraguay.svg](https://commons.wikimedia.org/wiki/File:Central_in_Paraguay.svg).



**Figure S3.- Peru's screened region for triazole-resistant *Aspergillus fumigatus*.** **A)** Representative image portraying the departmental regions of Peru. Depicted in red are the department of Lima (dark-red) and the metropolitan area of the city of Lima (light-red). The screened region is contained within the squared region (yellow-squared area). **B)** Location of samples with triazole-resistant *A. fumigatus* isolates (yellow-marker) within the screened region (square).

\* This vector image includes elements that have been taken or adapted from the publicly available file: Peru\_-(Template).svg

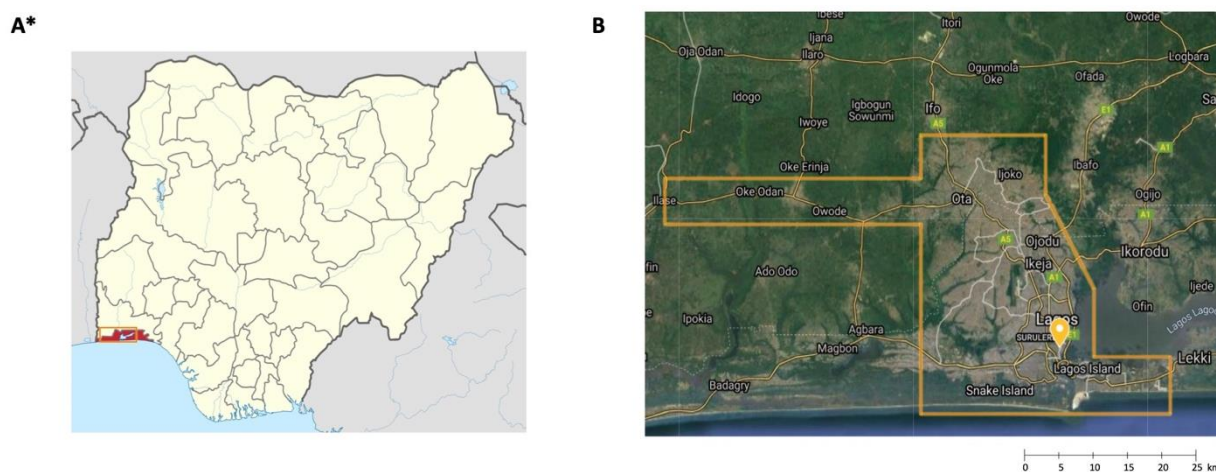
(by Huhsuqu)., July 2009, retrieved 18:17, January 10, 2021 from [https://commons.wikimedia.org/wiki/File:Peru\\_-\\_Lima\\_Department\\_\(locator\\_map\).svg?uselang=fr](https://commons.wikimedia.org/wiki/File:Peru_-_Lima_Department_(locator_map).svg?uselang=fr).



Location of samples with triazole-resistant *A. fumigatus* isolates

**Figure S4.- Screened regions of Benin for triazole-resistant *Aspergillus fumigatus*.** A) Depictive image of Benin's departments showing the screened region located within the yellow-lined area with B) an enlarged view of sampling location of screened regions.

\* This vector image includes elements that have been taken or adapted from the publicly available file: Benin in its region.svg (by TUBS), May 2011, from [https://commons.wikimedia.org/wiki/File:Benin\\_in\\_its\\_region.svg](https://commons.wikimedia.org/wiki/File:Benin_in_its_region.svg); and the file: Benin location map.svg (by NordNordWest), January 02, 2009., from [https://es.m.wikipedia.org/wiki/Archivo:Benin\\_location\\_map.svg](https://es.m.wikipedia.org/wiki/Archivo:Benin_location_map.svg)., retrieved at 19:27, January 11, 2021.



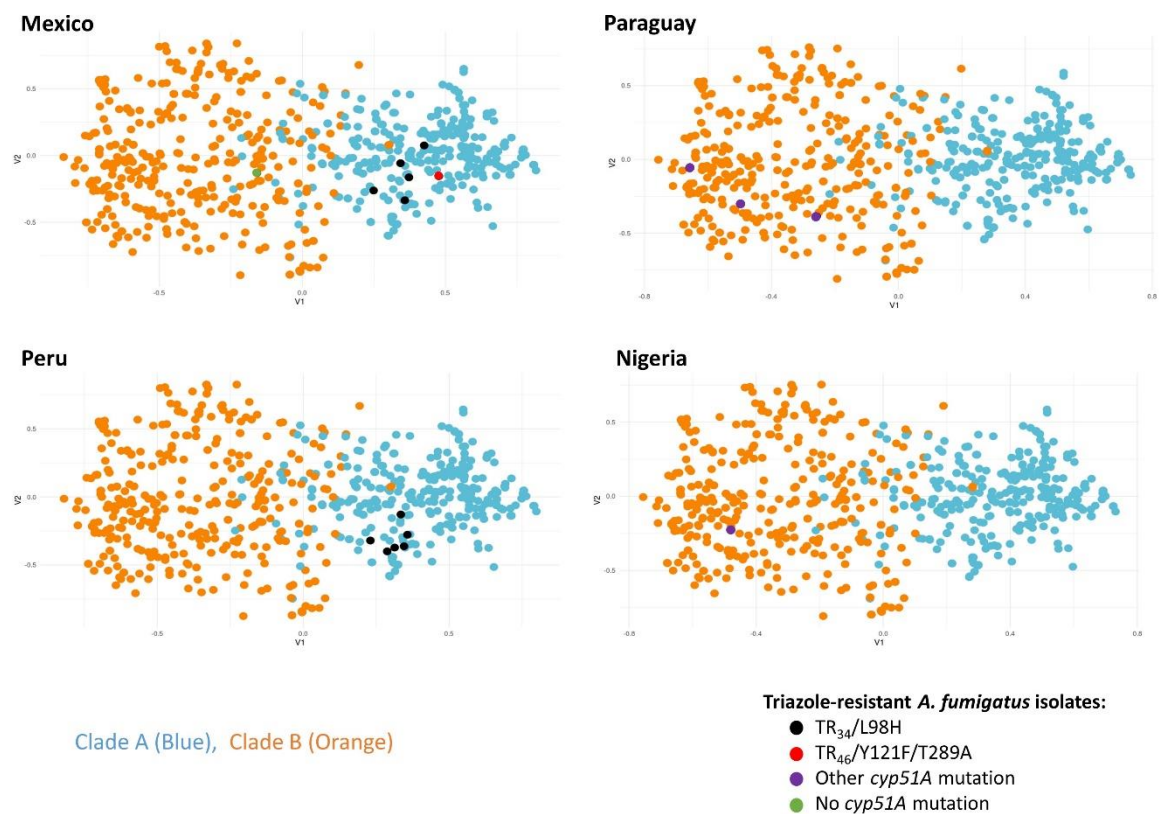
Location of samples with triazole-resistant *A. fumigatus* isolates



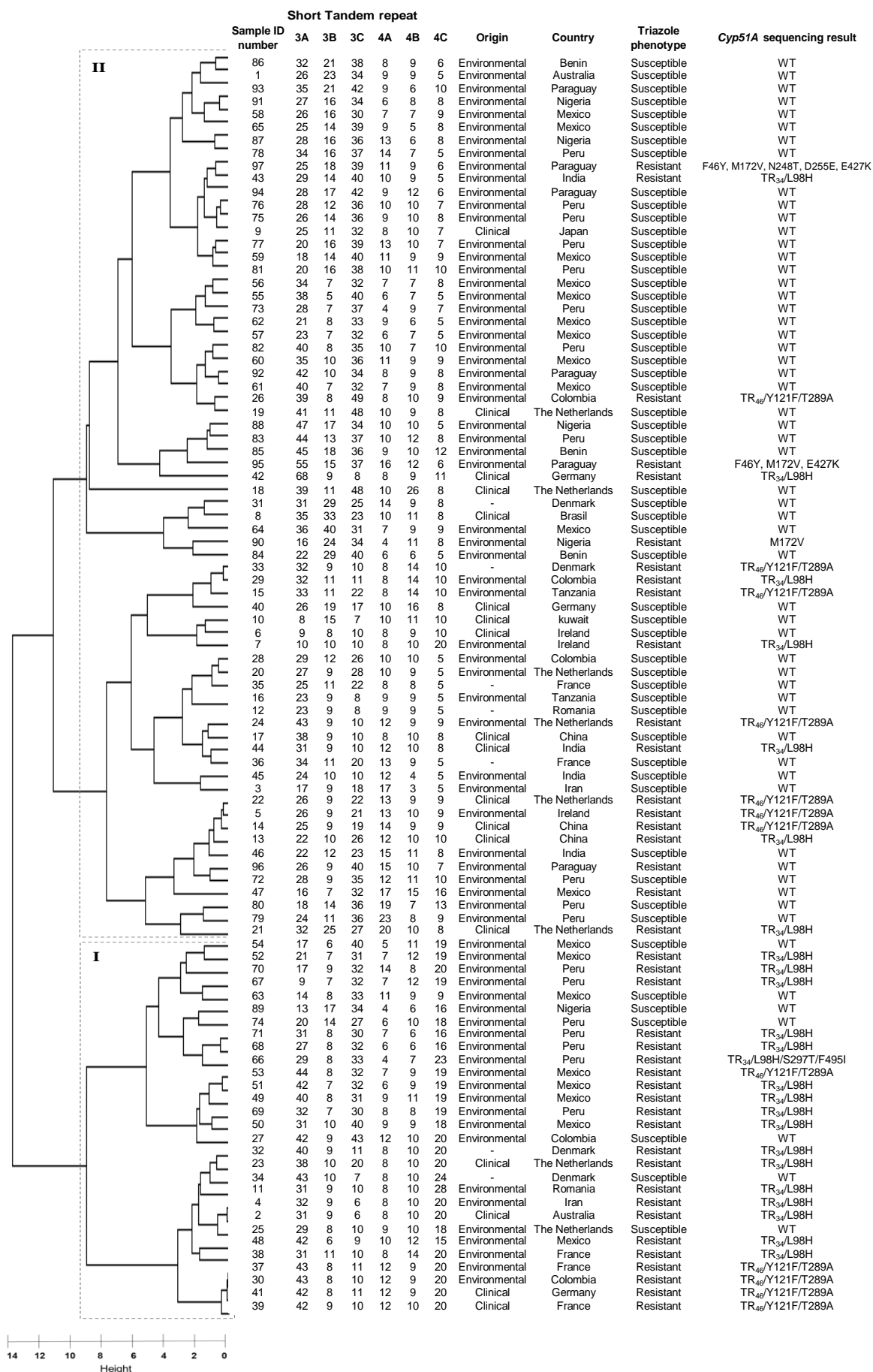
**Figure S5.- Environmental screening regions for triazole-resistant *Aspergillus fumigatus* in Nigeria.**

**A)** Representative image portraying Nigeria's states depicting the state of Lagos in red and the screened region within the lined area (yellow line). **B)** Location of samples with triazole-resistant *A. fumigatus* isolates (yellow-marker) within the screened region (yellow-lined area).

\* This vector image includes elements that have been taken or adapted from this file: Nigeria location map.svg (by Uwe Dederig), CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=17436041>



**Figure S6.- Principal component analysis of triazole-resistant *A. fumigatus* isolates.** Genetic relatedness analysis of triazole-resistant *A. fumigatus* isolates from Mexico, Paraguay, Peru, and Nigeria based on short tandem repeat profile according to the interactive web-based tool AfumID metadata application (principal component analysis). Clade A (blue) represents the population where the majority of analyzed worldwide triazole-resistant isolates and of the *cyp51A* alleles TR<sub>34</sub>/L98H and TR<sub>46</sub>/Y121F/T289A locate. Clade B (orange) portrays the population where most susceptible (wild-type) isolates are distributed.



**Figure S7. Genetic relationship and characteristics of selected *Aspergillus fumigatus* isolates according to short tandem repeats typing.** Characteristics and hierarchical clustering analysis (Euclidean distances by Ward's method) between triazole-resistant and selected susceptible isolates from our study and worldwide isolates describing two clades, clade I and clade II, at a genetic height of 9 (range 0-9.21, mean 3.25). *Scale represents genetic height relatedness.* Abbreviations: Identification (ID).

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