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Characterization and proposal of two new species in *Aspergillus* section *Nigri*

Cai Bian¹⁾, Yikelamu Alimu¹⁾, Yoko Kusuya¹⁾, Tetsuhiro Matsuzawa²⁾, Hiroki Takahashi¹⁾, Takashi Yaguchi¹⁾

¹⁾Chiba University, Japan

²⁾University of Nagasaki

Purpose: *Aspergillus* section *Nigri* (section *Nigri*) is an important group of species in food mycology, medical mycology and biotechnology. *Aspergillus niger* (*A. niger*) is a member of section *Nigri*, and second most frequently isolated from clinical specimens in Japan. Here we propose two new species in section *Nigri* supported by the genomic and phenotypic analysis.

Methods: We investigated a total of 11 *A. niger* related strains including six clinical and five environmental strains isolated in Japan and Kenya, respectively. We performed the phylogenetic analysis based on both calmodulin gene and the whole genome sequences. We observed and compared their morphological characters such as colony size on CYA, MEA at both 25 and 37 degree Celsius. We also measured their drug resistance to ITCZ and VRCZ.

Results: Among 11 strains, five and six strains were classified as *A. costaricensis* and *A. tubingensis*, respectively, based on the phylogenetic analysis by using calmodulin gene sequences. However, according to the genome-wide phylogenetic analysis, we observed that these strains were located in two new clades.

Conclusion: The genomic and phenotypic data indicated two new species in section *Nigri*.