

## Genetic Approach to Target Putative PKS Genes Involved in Ochratoxin a Biosynthesis within *Aspergillus* Section *Nigri*, As a Main Cause of Human Nephropathy

**Authors :** Sabah Ben Fredj Melki, Yves Brygoo, Ahmed Mliki

**Abstract :** A 700 pb PCR-derived DNA fragment was isolated from *Aspergillus carbonarius*, *Aspergillus niger*, and *Aspergillus tubingensis* using degenerated primers (LC1-LC2c) and two newly designed primer pairs (KSLB-LC6) for *Aspergillus niger* and (AF11F-LC2) for *Aspergillus tubingensis* developed for the acyl transferase (AT) and the KS domains of fungal PKSs. DNA from the most of black *Aspergillus* species currently recognized was tested. Herein, we report on the identification and characterisation of a part of the novel putative OTA-polyketide synthase gene in *A. carbonarius* "ACPks", *A. niger* "ANPks" and *A. tubingensis* "ATPks". The sequences were aligned and analyzed using phylogenetic methods. Primers used in this study showed general applicability and other *Aspergillus* species belonging to section *Nigri* were successfully amplified especially in *A. niger* and *A. tubingensis*. The predicted amino acid sequences "ACPks" displayed 66 to 81% similarities to different polyketide synthase genes while "ANPks" similarities varied from 68 to 71% and "ATPks" were from 81 to 97%. The AT and the KS domains appeared to be specific for a particular type of fungal PKSs and were related to PKSs involved in different mycotoxin biosynthesis pathways, including ochratoxin A. The sequences presented in this work have a high utility for the discovery of novel fungal PKS gene clusters.

**Keywords :** Pks genes, OTA Biosynthesis, *Aspergillus Nigri*, sequence analysis

**Conference Title :** ICMB 2023 : International Conference on Microbiology and Biology

**Conference Location :** Barcelona, Spain

**Conference Dates :** June 19-20, 2023