CHARACTERISATION OF ASPERGILLUS FLAVUS *ISOLATED FROM WINEMAKING GRAPES*

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INTRODUCTION

Concern about filamentous fungi in vineyards has been traditionally linked to the spoilage of grapes. However, the recent detection of ochratoxin A in wines has increased the interest in mycotoxins. Although not very common in grapes, *Aspergillus flavus* is occasionally isolated from grapes. *A. flavus* is the main producer of the well known carcinogenic mycotoxins, the aflatoxins, and the presence of this fungus and aflatoxins is of major food safety concern.

The identification of *A. flavus* is not straightforward due mainly to similarities with its closely related species (*A. parasiticus*, *A. nomius*). Various morphological and biochemical parameters may be used for identification: Color of colonies on Czapek Medium (CZ), seriation of conidial heads, conidia ornamentation, production of aflatoxins B1, B2, G1 and G2, and production of cyclopiazonic acid.

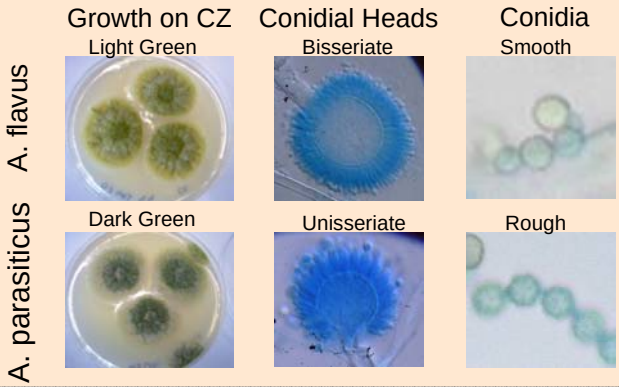
OBJECTIVES

The aim of this study was to revise the identification scheme of *Aspergillus flavus* and *A. parasiticus* to confirm its consistency.

For that matter, we tested 26 *Aspergillus* Section *Flavi* strains isolated from winemaking grapes from 2001 to 2003.

CLASSICAL IDENTIFICATION SCHEME

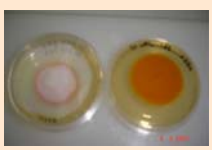
Morphological identification

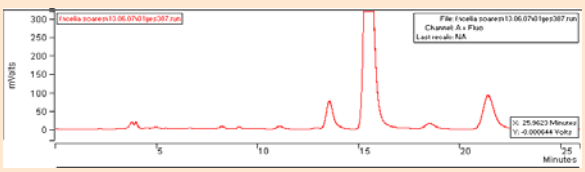


Biochemical identification

Species	AFPA[a]	Fluorescence[b]	AFB[c]	AFG[d]	CPA[e]
A. flavus	Orange	++	++	-	++
A. parasiticus	Orange	++	++	++	-

a : *Aspergillus flavus* and *A. parasiticus* agar; b : Fluorescence on Coconut Agar Medium
c : Aflatoxins B1 and B2; d : Aflatoxins G1 and G2; e: Cyclopiazonic Acid





IDENTIFICATION SCHEME REVISION

Strain	Color	Seriation	Conidia	Fluoresc.	AFBs	AFGs	CPA	Classification
01UAS 1	Light	b/u	smooth	No	No	No	n/d	*A.flavus*
01UAS 6	Light	b	smooth	No	No	No	n/d	*A.flavus*
01UAS 28	Light	b	smooth	No	No	No	n/d	*A.flavus*
01UAS 29	Dark	u	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
01UAS 55	Light	b	smooth	No	Yes	Yes	n/d	*A.flavus*
01UAS168	Dark	b/u	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
01UAS 383	Dark	u/b	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
01UAS 386	Dark	u/b	rough	No	Yes	No	n/d	*A. parasiticus*
01UAS 387	Dark	b/u	smooth	Yes	Yes	Yes	n/d	*A.flavus*
01UAS 388	Light	b/u	smooth	No	No	No	n/d	*A.flavus*
01UAS 389	Dark	b	smooth	Yes	Yes	Yes	n/d	*A.flavus*
02UAS 4	Light	b	smooth	No	No	No	n/d	*A.flavus*
02UAS 44	Light	b/u	smooth	No	No	No	n/d	*A.flavus*
02UAS 70	Light	b	smooth	No	No	No	n/d	*A.flavus*
02UAS 109	Light	b/u	smooth	No	Yes	No	n/d	*A.flavus*
02UAS 122	Dark	u/b	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
02UAS 127	Light	b/u	smooth	No	No	No	n/d	*A.flavus*
03UAS 19	Light	b	smooth	No	No	No	n/d	*A.flavus*
03UAS 22	Light	b	smooth	No	No	No	n/d	*A.flavus*
03UAS 35	Dark	b/u	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
03UAS 64	Dark	u/b	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
03UAS 67	Dark	u/b	rough	Yes	Yes	Yes	n/d	*A. parasiticus*
03UAS 68	Light	b/u	smooth	No	No	No	n/d	*A.flavus*
03UAS 195	Light	b	smooth	No	No	No	n/d	*A.flavus*
03UAS 259	Light	b	smooth	No	No	No	n/d	*A.flavus*
03UAS 285	Dark	u/b	rough	Yes	Yes	Yes	n/d	*A. parasiticus*

n/d: not detected.

REFERENCE:

Rodrigues P, Soares C, Kozakiewicz Z, Paterson RRM., Lima N, Venâncio A, 2007. Identification and characterization of *Aspergillus flavus* and aflatoxins. In: Microbiology Book Series - Communicating Current Research and Educational Topics and Trends in Applied Microbiology (Méndez-Vilas, A. ed.), Vol. 2, 527-534, Formatex 2007 (ISBN-13: 978-84-611-9423-0).

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