



ISSN: 2231-3354  
Received on: 04-10-2011  
Revised on: 15-10-2011  
Accepted on: 22-10-2011

## Evaluation of antifungal activity of some oils from Algerian medicinal plants against *Aspergillus flavus* strain produced aflatoxins

A. Amrouche, H. Benmehdi, A. Moussaoui, K. Mebarki, A. Chaoufi, A. Saneba, A. Lazouni .H and D. Chabane Sari

A. Amrouche, A. Saneba  
A. Moussaoui, K. Mebarki,  
A. Chaoufi  
Laboratory of Plant Resource  
Development and Food Security in  
Semi Arid Areas, South West of  
Algeria, BP 417, University of  
Bechar, Algeria.

A. Lazouni .H, D. Chabane Sari  
Laboratory of Natural Products  
Research (LAPRONA)  
University of Tlemcen, Algeria.

H. Benmehdi  
<sup>a</sup>Laboratory of LASNABIO,  
Department of Chemistry, University  
of Tlemcen 13000 Algeria.  
<sup>b</sup>Laboratory of Plant Resource  
Development and Food Security in  
Semi Arid Areas, South West of  
Algeria, BP 417, University of  
Bechar, Algeria.

**For Correspondence**  
A. Amrouche  
Laboratory of Plant Resource  
Development and Food Security in  
Semi Arid Areas, South West of  
Algeria, BP 417, University of  
Bechar, Algeria.

### ABSTRACT

Antifungal activity of the oils extracts of *Citrullus colocynthis* L., *Linum usitatissimum* L., *Nigella sativa* L. collected from Bechar Department in the region of (Algeria) has been evaluated in this present study. Two methods were used in this investigation: radial growth on solid medium and biomass on liquid medium. The oils extracts were obtained by Soxhlet extraction of the seeds part. The values of physicochemical indices of our oils such as acid, acidity and peroxide were also determined. The results of the antifungal potency revealed that the seeds oils exhibited different degrees of inhibition against *Aspergillus flavus* MTTC 2799. However, evaluation of radial growth on *Potatoes Dextrose Agar* (PDA) solid medium showed slight mycelial growth proportional to oil concentration added to the medium. Antifungal indices investigation allowed as to put our oils in the order of effectiveness: *L. usitatissimum* (29%) > *C. colocynthis* (26.5 %) > *N. sativa* (18.75 %). Evaluation of *Aspergillus flavus* biomass production on *Potatoes Dextrose Broth* (PDB) on liquid medium revealed that the studied oils produced a variable weight reduction (*C. colocynthis* and *L. usitatissimum* at concentration superior to 80µl/ml). On the contrary, *N. sativa* oil reduced *Aspergillus flavus* biomass at concentrations of 80µl/ml and 100µl/ml.

**Keywords:** Antifungal activity, oils, *Citrullus colocynthis* L., *Linum usitatissimum* L., *Nigella sativa* L., *Aspergillus flavus*

### INTRODUCTION

Fungi are significant destroyers of foodstuffs and grains during storage, rendering them unfit for human consumption by retarding their nutritive value and often by producing mycotoxins (Marin *et al.*, 1999; Janardhana *et al.*, 1998). A significant portion of the agricultural produce in the country and the world over become unfit for human consumption due to mycotoxins contamination of grains, especially those produced by species of *Aspergillus* (Janardhana *et al.*, 1999; Chandra R. and Sarbhoy A.K., 1997; Devi *et al.*, 2001; Lopez *et al.*, 2010; Pitt *et al.*, 2000). More than 25% of the world cereals are contaminated with known mycotoxins and more than 300 fungal metabolites are reported to be toxic to man and animals (Matheron *et al.*; 2005). Mycotoxins especially aflatoxins produced by *A. flavus* species are reported to be toxic. Besides, they are thermally stable and resistant at high pH which they make detoxication skills are not efficacy (Bourais and Amine; 2006). Unfortunately, remove completely the mycotoxins still an impossible mission. Thus, there is a need to search for alternative approaches to store