



Biological effect of *Ocimum gratissimum* (Alfavacão) essential oil in *Candida* spp.

Natália V. Carrasco*, Sarah R. Pimenta, Aline L. N. Marques, Simone N. B. de Feiria, Giovana C. Boni, José Francisco Höfling.

Abstract

The use of medicinal plants is a millenarian practice and plays an important role in the development of commercial drugs. Therefore, the present project aimed to determine the antimicrobial activity of *Ocimum gratissimum* essential oil through the broth microdilution test and evaluate the effect of the essential oil on biofilm formation by *Candida albicans*. The results showed antifungal activity between 0.25 and 1 mg/mL and decrease of the metabolic activity of *C. albicans* biofilm between 8-0,5 mg/mL. The essential oil demonstrates antifungal activity against *Candida* spp. and decreases the metabolic activity of *C. albicans* when in biofilm formation.

Key words:

Ocimum gratissimum, *Candida* spp., Biofilm.

Introduction

The use of medicinal plants is a millenarian practice and plays an important role in the development of commercial drugs, since they are sources of bioactive principles that act in a therapeutic way in the human organism. Many plants are indicated in the literature because they present antimicrobial activities, showing a good alternative in the development of studies that look for new compounds that have antimicrobial or adjuvant action in the control of oral microorganisms. Therefore, the present project aimed to determine the antimicrobial activity through the broth microdilution test in the search for minimum inhibitory concentration and evaluate the biological effect of the essential oil on biofilm formation by *Candida albicans* (SC 5314).

Results and Discussion

The antimicrobial effect was evaluated by the broth microdilution assay against 16 strains of *Candida* spp. (CSLI, M27-A3, 2008). The biological effect of the essential oil on the biofilm was evaluated in the biofilm in formation and mature. The inoculum was adjusted to 1×10^6 cells/mL and both were pre-incubated, being a pre-incubation of 2h (biofilm formation) and another of 24h (mature biofilm) respectively. After this period both biofilms were treated and incubated for 24h. The biofilms were quantified after 2h exposure of 80 μ l of XTT and read in a microplate spectrophotometer at 490nm.

The essential oil of *Ocimum gratissimum* showed antifungal activity between 0.25 and 1 mg/mL. The lowest concentration found was for *C. parapsilosis* and *C. utilis*.

The oil showed an effect on the decrease of the metabolic activity of *C. albicans* (SC 5314) in biofilm formation between 8-0,5 mg/mL and mature biofilm in range 8-2 mg/mL.

Image 1. Effect essential oil of *Ocimum gratissimum* against *Candida albicans* biofilm.

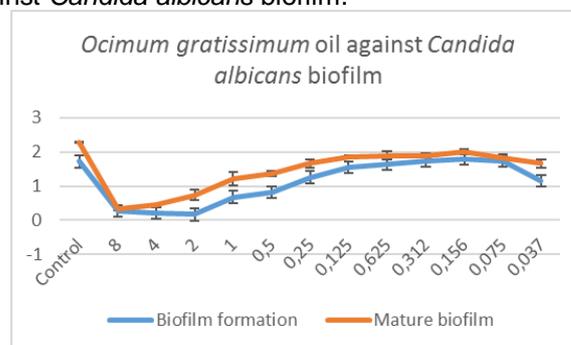


Chart 1. Determination of minimum inhibitory concentration (MIC)

CEPA	[] mg/mL	CEPA	[] mg/mL
CA SC 5314	1	CL ATCC 4031	1
CA ATCC 90028	1	CL IZ06	0,5
CA CBS 562	1	CP ATCC 22019	0,25
CD CBS 7987	0,5	CP CBS604	0,25
CG IZ07	1	CR IZ12	1
CGUI CBS 566	0,5	CT ATCC 40281	1
CK ATCC 6258	1	CT CBS 94	1
CK CBS 573	1	CUT CBS 560	0,25

CA: *C. albicans*; CD: *C. dubliniensis*; CG: *C. glabrata*; CGUI: *C. guilliermondii*; CK: *C. krusei*; CL: *C. lusitanae*; CP: *C. parapsilosis*; CR: *C. rugosa*; CT: *C. tropicalis*; CUT: *C. utilis*;

Conclusions

The essential oil demonstrates antifungal activity against *Candida* spp. and decreases the metabolic activity of *C. albicans* when in biofilm formation.

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