



Evaluation of the antifungal activity and antibiofilm of the essential oil of *Ocimum canum* (Alfavaca) in *Candida* spp.

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Abstract

Essential oils from plants of the genus *Ocimum* have demonstrated potential for anti-*Candida* action, as described in the literature. The objective of the present project was to evaluate the antifungal activity against *Candida* spp. and the antibiofilm effect of *C. albicans* of *O. canum* essential oil. The essential oil showed antifungal activity between 0.0062 to 1 mg / mL and effect on metabolic activity of the biofilm by up to 50% at concentrations of 16-1 mg / mL. The essential oil demonstrates antifungal activity against *Candida* spp. and decreases the metabolic activity of *C. albicans* when in biofilm in formation and mature.

Key words:

Candida spp., *Ocimum* spp., Medicinal plants.

Introduction

Candida spp. fungi, related to infections associated with immunosuppressed patients, have demonstrated an increasing acquisition of resistance to the antifungal drugs available for the control of these microorganisms, which has led the researchers of this area to look for new alternatives of drugs that have an action against these organisms. In this context, essential oils extracted from plants of the genus *Ocimum* have demonstrated the potential of antimicrobial action, especially antifungal activity, against fungi of the species *Candida*, as described by several authors in the scientific literature. Therefore, the present project aimed to evaluate the antifungal activity against *Candida* spp. and 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. From an overnight culture, 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 canum* showed antifungal activity between 0.0062 - 1 mg/mL. The lowest concentration found was for *C. utilis*.

The oil showed an effect on the decrease of the metabolic activity of *C. albicans* in biofilm formation and mature biofilm in 50% between concentrations of 16-1 mg/mL.

Image 1. *Ocimum canum* oil against *Candida albicans* biofilm

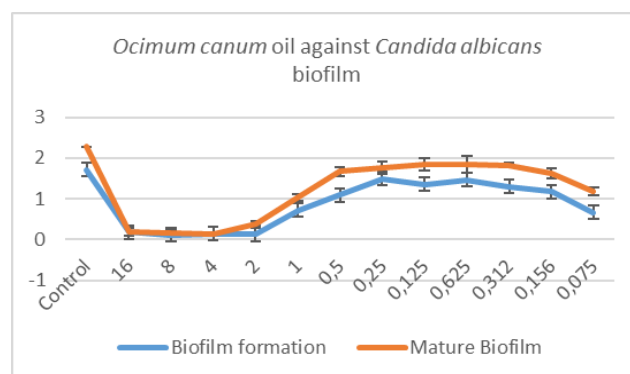


Chart 1. Determination of minimum inhibitory concentration (MIC)

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	0,25	CP CBS604	0,25
CG IZ07	1	CR IZ12	0,5
CGUI CBS 566	0,25	CT ATCC 40281	0,5
CK ATCC 6258	1	CT CBS 94	0,5
CK CBS 573	0,5	CUT CBS 560	0,0062

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 of *Ocimum canum* demonstrates antifungal activity against *Candida* spp. and decreases the metabolic activity of *C. albicans* when in biofilm.

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