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1: [Oral Microbiol Immunol.](#) 2005 Apr;20(2):106-11.

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Study of anticandidal activity of carvacrol and eugenol in vitro and in vivo.

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BACKGROUND/AIMS: The mechanism of the anticandidal action of the major phenolic components of oregano and clove essential oils - carvacrol and eugenol - was studied. This activity was also evaluated for the therapeutic efficacy in the treatment of the experimental oral candidiasis induced by *Candida albicans* in immunosuppressed rats. **METHODS:** In vitro, the addition of carvacrol at 0.1% or eugenol at 0.2% during the exponential growth of *C. albicans* was evaluated. The release of substances absorbing at 280 nm by cells treated with these two components was also measured spectrophotometrically. In vivo, oral candidiasis in immunosuppressed rats was established by inoculating 3×10^8 cells of *C. albicans* with a cotton swab on three alternate days. The number of colony counts was evaluated from the oral cavity of rats treated for eight consecutive days with carvacrol, eugenol or nystatin and compared to untreated controls. **RESULTS:** Carvacrol and eugenol were fungicidal in exponentially growing *C. albicans*. Interestingly, this fungicidal effect was accompanied by the release of substances absorbing at 280 nm. In an immunosuppressed rat model of oral candidiasis, carvacrol or eugenol treatment significantly ($P < 0.05$) reduced the number of colony counts sampled from the oral cavity of rats treated for eight consecutive days compared to untreated control rats. Similar results were obtained with nystatin used as a reference treatment. **CONCLUSION:** The in vitro results indicated that both carvacrol and eugenol exerted an anticandidal effect by a mechanism implicating an important envelope damage. Their in vivo efficacy on experimental oral candidiasis leads us to consider them as possible antifungal agents.

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