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## Antifungal effect of silver nanoparticles versus miconazole oral gel/suspension in experimentally-induced oral candidiasis in rats

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**Aim:** The present study assessed the antifungal activity of silver nanoparticles against experimentally-induced oral candidiasis compared to miconazole oral gel/suspension.

**Main methods:** Oral candidiasis was induced in male rats using *Candida albicans* (ATCC 90028). One hundred and ninety two rats were assigned into six groups; 32 rats each. Group 1: rats without oral candidiasis (immunosuppressed/not infected); Group 2: rats with oral candidiasis (immunosuppressed/infected); Group 3: rats with oral candidiasis treated topically with 2% miconazole oral gel; Group 4: rats with oral candidiasis and treated topically with 2% miconazole aqueous suspension; Group 5: rats with oral candidiasis and treated topically with silver nanoparticle solution (50 µg/ml); Group 6: rats with oral candidiasis and treated topically with silver nanoparticle solution (100 µg/ml). All treatments were applied topically every day for 2 weeks. *In vitro* determination of Minimal Inhibitory Concentration (MIC) was performed using macro broth dilution method. Baseline assessment was conducted on day 0 (just before drug treatment). Macroscopic evaluation of the lesions, microbial counting and histopathological changes were evaluated on day 0, 7, day 14 and the follow up assessment was performed at day 28.

**Key findings:** *In vivo* experiment indicated that silver nanoparticles provided a quicker and effective onset of antifungal activity with greater efficacy on day 7 only regarding all measured parameters compared to miconazole. However, the effect was generally equivalent to that provided by miconazole after day 14 and day 28.

**Significance:** Silver nanoparticles may be considered as a promising candidate for treatment of oral *C. albicans* infections if clinical safety data are available.

### Biography

Sawsan A Zaitone has completed his PhD from Suez Canal University, Ismailia, Egypt. She has published more than 20 papers in reputed journals and participated in many international and national conferences. She has supervised more than 15 master and PhD thesis during the last eight years.

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