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## In Vitro Antimicrobial Properties of Bisabolol and Dragosantol

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Background: Bisabolol (BIS) is a non-toxic plant sesquiterpene; dragosantol (DR) is a racemic mixture of BIS. *In vitro* activity against four fungal and two bacterial genera were determined. Materials: Assays were run separately 3 times. *A. flavus*, *A. fumigatus*, *A. niger*, *A. terreus*, *F. oxysporum* (FO), *F. verticillioides* and *F. solani* were grown on potato dextrose agar (30°C, PDA). Conidia (3 X 10<sup>4</sup>/ml) were prepared in 1% potato dextrose broth (PDB) and nongerminated (NG) conidia used immediately. Germinating (GERM) conidia developed after 8 hr (30°C). Samples contained conidia (25µl, NG or GERM) and BIS or DR (final concentration and volume: 0-10µM, 250µM) in PDB. Controls were conidia (25µl) and PDB (225µl). After mixing (30°C, 30 min), aliquots (50µl) were spread on PDA plates, incubated (24 hr, 30°C) and colonies counted. *P. aeruginosa* (PA) and *S. aureus* (SA) were grown on nutrient agar (NA; 24 hr, 37°C) and suspensions (1 X 10<sup>4</sup>/ml) prepared. Samples contained cells (25µl) and BIS or DR (final conc.: 0-30µM) in NB. Controls contained cells (25µl) and NB (225µl). After mixing (37°C; 0, 2 hr), aliquots (50µl) were spread on NA plates, incubated (24 hr, 37°C) and colonies counted. SigmaStat determined statistical significance (n=12, p<0.001). NCCLS Method 38A determined MICs for BIS (final concentration: 0-64µg/ml) against *T. tonsurans*, *T. mentogrophytes*, *T. rubrum* and *M. canis*. MICs were measured at 450 and 640nm (72, 96, and 120 hr). Results: BIS and DR (≤10µM) were significantly lethal (≥98%) for all GERM conidia. For NG conidia, only FO viability was significantly reduced by BIS and DR (at 6µM). BIS and DR significantly reduced PA viability at 7.5µM (0 hr) and SA at 12.5µM (2 hr). BIS (72-120 hrs) MIC values were: *T. tonsurans* (2-8µg/ml), *T. mentogrophytes* (2-4µg/ml), *T. rubrum* (0-1µg/ml) and *M. canis* (0.5-2µg/ml). Conclusion: BIS and DR have potent *in vitro* antimicrobial properties against the tested microorganisms.