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PP39. Microbial growth inhibition by oximes derived from natural volatile carbonyl compounds

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Drug resistance rates in healthcare and community systems are induced by some bacterial and fungal pathogens. The answer to the challenge of antimicrobial resistance is searching for new alternatives to antibiotics.

The aim of our work was to evaluate the antimicrobial activity of low-molecular oximes, which have not been extensively studied with regard to this issue. Fifty-three oximes were screened *in vitro* for their growth inhibitory activity against seven strains of microorganisms: *Escherichia coli* (ATCC 10536), *Staphylococcus aureus* (ATCC 6538), *Enterococcus hirae* (ATCC 10541), *Pseudomonas aeruginosa* (ATCC 15442), *Legionella pneumophila* (ATCC 33152), *Aspergillus brasiliensis* (ATCC 16404), and *Candida albicans* (ATCC 10231). The growth inhibition of microorganisms was tested using the paper disc diffusion method. Three antibiotics, netilmicin, fluconazole, and ofloxacin, were used as reference controls for the tested microorganisms. The oximes' antimicrobial activity was evaluated by measuring the diameters of the inhibitory zones. Oximes of *trans*-cinnamaldehyde, propiophenone, (±)-citronellal, and piperitone showed strong antifungal activity, while the oximes of α-hexyl cinnamaldehyde, hydroxycinnamaldehyde, α-isomethyl ionone, pseudoionone, (-)-fenchone, and (+)-fenchone oximes showed strong antibacterial activity.

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