

TITLE: ANTIBACTERIAL ACTIVITY OF OREGANOL P73 AGAINST RESISTENT BACTERIAL STRAINS

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ABSTRACT

The emergence and spread of multi-resistant pathogenic bacteria have increased in recent years and have become a public health problem in Brazil and the world, mainly in Gram negative-pathogens. Indiscriminate use of antimicrobials in human and veterinary medicine, livestock industry, and disregard for discharge of effluents, have contributed significantly to the selection of multi-resistant bacteria, this problem unleashed the search for new drugs that are effective in combating these microorganisms. Compounds derived from plants, animals or microorganisms, have been proposed as alternative antimicrobials. One of the alternatives is the use of natural compounds, as Oreganol P73 (North American Herb & Spice). This oil is obtained by steam distillation, which steam is used to lower the distillation temperatures of high boiling organic compounds that are immiscible with water. In the process, steam is charged to the matrix to volatilise the hydrophobic liquid and carry it across to a chilled condenser for subsequent liquefaction and separation from water. This study evaluated antibacterial effect of Oreganol against three strains of extended-spectrum β -lactamase-producing *Escherichia coli* and two strains carbapenemase-producing *E. coli*. The minimal inhibitory concentration (MIC) was determined, this method was proposed by the National Committee for Clinical Laboratory Standards (Clinical and Laboratory Standards Institute) (CLSI, 2015), with necessary modifications. Oreganol showed antibacterial activity against all tested bacteria. The Oreganol MIC value was 2,5% (v/v) to all strains of ESBL-producing *Escherichia coli* and the MIC value was 5% (v/v) to all strains KPC-producing *E. coli*. This study is important because natural antibiotics can be a good alternative for clinical treatment. It does not irritate or artificially stimulate the body and it is more accessible, easily to finding and is cheaper than others commercial antibiotics. Oreganol have potential to be applied in food, dental and pharmacist industry.

Keyword: *Origanum vulgare*, multidrug-resistant bacteria, minimal inhibitory concentration.

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