

**TITLE:** EVALUATION OF THE ANTIBACTERIAL ACTIVITY OF ESSENTIAL OIL OF *Ocimum basilicum* L. (BASIN) AGAINST CLINICAL ISOLATES OF *Klebsiella pneumoniae*

**AUTHORS:** PRUSKI, B.B.; STALLBAUM, L.R.; SIMÃO, H.Q.; FREITAS, S.B.; ROLOFF, B.C.; BAMMANN, L.H.M.; HARTWIG, D.D.

**INSTITUTION:** FEDERAL UNIVERSITY OF PELOTAS, INSTITUTE OF BIOLOGY, DEPARTMENT OF MICROBIOLOGY AND PARASITOLOGY, CAMPUS CAPÃO DO LEÃO (AVENIDA ELISEU MACIEL, 1, CEP: 96160-000, PELOTAS – RS, BRASIL).

## **ABSTRACT**

Medicinal plants are gaining greater prominence in the treatment of infectious diseases, due to the growing resistance of microorganisms to conventional therapy. Plant oils and extracts have been used over the centuries in folk medicine, such as topical antiseptics. The application of these products has been investigated scientifically with the purpose of confirming the antimicrobial activity of the essential oils (EO) against multiresistant microorganisms. Based on this, the present study aims to evaluate the antibacterial activity of *Ocimum basilicum* L. (basin) against 46 clinical isolates of *Klebsiella pneumoniae*. The analysis of the antibacterial capacity of EO was performed by determining the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC), following the standards of the Clinical and Laboratory Standards Institute (CLSI, 2012, with modifications). It was observed that 52.17% of the isolates showed antibacterial action of EO of basil up to the concentration of 0.78%, while 13% of the isolates presented the same action up to the concentration of 0.39%, and 17.39% presented action up to the concentration of 1.52%, remaining 13% of the isolates with action up to 3.125% EO concentration in the MIC test. The MBC test showed that this EO presented bactericidal action against 78.2% of the isolates in these concentrations. Thus, we conclude that the basil EO presented bactericide against most of the isolates tested proving to be effective since it had an effect at low concentrations. These results design the use of this EO as an alternative in the treatment of bacterial infections, stimulating the investigation of the application of these natural products in isolation or in combination with other antibacterial and may often reduce the undesirable adverse effects of some drugs.

**Keywords:** Antimicrobial activity, basil, essential oil, *Klebsiella pneumoniae*.

**Development Agency:** Federal University of Pelotas