TITLE: Activity of secondary metabolites from plants against *Klebsiella pneumoniae* producing of carbapenemase strains

AUTHORS: Ximenes R.[1], Azevedo Ximenes, M.[1]; Campelo, P.[2], Ximenes, E. A.[1].
INSTITUTIONS: [1]UFPE – Universidade Federal de Pernambuco (Rua Artur de Sá S/N, Cidade Universitária. CEP 50740-520. Laboratório de Fisiologia e Bioquímica de Microrganismos – Departamento de Antibióticos – Cidade Universitária, Recife – PE).
[2] Hospital Agamenon Magalhães (Estrada do Arraial, 2723 - Casa Amarela, Recife - PE, 52070-230)

ABSTRACT:

The prevalence of *Klebsiella pneumoniae* producing of carbapenemase (KPC increased in the last decade. These microorganisms are resistant to most ß-lactam antibiotics including "last-line" carbapenems and cause serious infections, mainly pneumonia, intra-abdominal and urinary. The mortality rates are high and therapy is limited to aminoglycosides, tigecycline and polymyxins. Due to the increased microbial resistance to multiple drugs, researches for news conducts therapeutics and new drugs are necessary. Natural compounds represent an important source for obtaining substances activity biologically. In this way, the aim of this study was to evaluate the antimicrobial activity of three terpenes (citral eucalyptol and linalool) and three naphthoquinones (lapachol, α-lapachone and β-lapachone) against eight clinical isolates of *Klebsiella pneumoniae*, *K. pneumoniae* ATCC BAA1705 (resistant strain) and *K. pneumoniae* ATCC 700603 (sensitive strain) whose resistance phenotypes were previously determined to cephalorosporins, carbapenems, aminoglycosides and quinolones. The MIC_s of these compounds were determined by the microdilution method in accordance with the Clinical and Laboratorial Standards Institute (CLSI). The MICs of citral, eucalyptol and linalool were equal or superior to 697, 2.790 and 348µg/mL respectively. For lapachol and α-lapachone, the MICs values were greater than 320 µg/mL and equal to 160 µg/mL for β-lapachone. These results were similar to those obtained for conventional antimicrobials. In this study it was observed that *K. pneumoniae* strains were classified as Multi Drugs Resistant (MDR) and also showed resistance to plants secondary metabolites.

Key-words: carbapenemase, terpenes, naphtoquinones, enterobacteriaceae
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