

microbiotec 09



28|29|30
Novembro '09
Vilamoura
Algarve

Book of Abstracts
of MicroBiotec09

BOOK OF ABSTRACTS OF MICROBIOTEC09

BOOK OF ABSTRACTS OF MICROBIOTEC09

28-30 NOVEMBER 2009, VILAMOURA, PORTUGAL

ORGANIZED BY

SOCIEDADE PORTUGUESA DE BIOTECNOLOGIA

SOCIEDADE PORTUGUESA DE MICROBIOLOGIA

INSTITUTE FOR BIOTECHNOLOGY AND BIOENGINEERING (UNIVERSIDADE DO
MINHO - DEPARTAMENTO DE ENGENHARIA BIOLÓGICA)

CENTRO DE RECURSOS MICROBIOLÓGICOS (UNIVERSIDADE NOVA DE LISBOA,
FACULDADE DE CIÊNCIAS E TECNOLOGIA – DEPARTAMENTO DE CIÊNCIAS
DA VIDA)

EDITED BY

THE ORGANIZING COMMITTEE OF MICROBIOTEC09

Reference

325

Bactericidal effect of essential oil of Angolan *Cymbopogon citratus* and its majority component

Soares, Marta Isabel Lopes Rodrigues de Oliveira (1); Silva, Andreia (1); Coutinho, Filipe (1); Vinha, Ana Critina Ferreira (1); Herdeiro, Teresa (1); Catarino, Pedro (1); Estevez, José M. García (2); Iglesias, Raúl (2); Machado, Marisa (3)

1: Escola Superior de Saúde do Vale do Ave, Instituto Politécnico de Saúde do Norte, Cooperativa Ensino Superior Politécnico e Universitário;

2: Laboratorio de Parasitología, Facultad de Biología, Universidad de Vigo;

3: Faculdade de Farmácia/CEF, Universidade de Coimbra, 3000 Coimbra, Portugal

E-mail: marta.soares@ipsn.cespu.pt

Keywords: *Cymbopogon citratus*, Óleo essencial, Citral, Actividade antibacteriana, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*

Abstract

Cymbopogon citratus (DC) Stapf. (erva príncipe), Poaceae – Gramineae, originated in India but it is also grown elsewhere in tropical and sub-tropical as Angola, where this is of great importance in the country's traditional medicine. Is consumed as a beverage aromatic and used in traditional by its lemon fragrance. It is also used in traditional medicine of almost all continents and covers a wide range of such indications of disorders digestives, infectious, inflammatory, nerve, as well as other health problems. Its use in traditional medicine covers a wide range of indications by tradition, trust, and lack of economic power. The antimicrobial properties of essential oils arouse interest are an alternative to consumers in the natural additive practice as a source of food conservation. This work wants to analyze qualitative and quantitative composition of the essential oil of *C. citratus* and assess its activity bacterial *in vitro* and its majority component the citral against *Staphylococcus aureus* (ATCC 25923), *Staphylococcus epidermidis* (ATCC 12228), *Escherichia coli* (ATCC 25922), *Klebsiella pneumoniae* (ATCC 13883) e *Proteus mirabilis* (ATCC 25933). The essential oil has been obtained by fresh plant hidrodestilation using the apparatus of Clavenger amended in accordance with the European Pharmacopoeia. The essential oil was analyzed by CG and CG-in, and the constituents were identified from its retention in CG index of two columns of different stages, and from mass spectrum, which were compared with reference data. The bacterial activity of *C. citratus* and citral was evaluated by the dissemination in agar. All experiments were carried out in triplicate on at least three independent tests. The essential oil and the citral revealed an injunction of dose-dependent growth, and *S. aureus* more likely than the *S. epidermidis*. Both showed inhibition from concentrations with 5% of oil in *S. aureus* and *S. epidermidis*. It was found differences statistics to the strains taking into account the concentration used. The statistical difference as regards positive controls means that the effect of compounds tested in these strains of *E. coli*, *K. pneumoniae* and *P. mirabilis* is not equivalent or greater, however there is significance ($p < 0,001$) compared with the negative control. The results suggest that this essential oil and its majority component have the potential for use against bacterial infections caused by *S. aureus* and *S. epidermidis*.