

TITLE: BIOLOGICAL ACTIVITY OF LAPACHOL AND β -LAPACHONE AGAINST *Staphylococcus aureus* ISOLATED OF CAPITAL MASTITIS

AUTHORS: BORGES, V.; FERNANDES, A.W.C.; SOUZA, B.C.S.; ARAÚJO, C.R.M. COSTA, M.M.

INSTITUTION: FUNDAÇÃO UNIVERSIDADE FEDERAL DO VALE DO SÃO FRANCISCO – UNIVASF, PETROLINA, PE (RODOVIA BR 407, LOTE 543 PROJETO DE IRRIGAÇÃO NILO COELHO, S/N, CEP 56300-000, PETROLINA - PE, BRAZIL).

ABSTRACT:

Mastitis is a disease of the utmost importance for the goat and dairy cattle, however, faces a problem related to the increase in cases of resistance of microorganisms to antibiotics, making it difficult to effective treatment. The use of therapeutic alternatives, phytocomposites or semi-synthetic, such as lapachol and β -lapachone, against isolated goat mastitis may provide new mechanisms for the treatment of this disease. The objective of this study was to evaluate the in vitro biological activity of Lapachol and β -lapachone against clinical isolates of caprine mastitis. Twenty isolates of the genus *Staphylococcus* from the UNIVASF Microbiology laboratory were used. Lapachol and β -lapachone were obtained from Grupo de Química Aplicada à Farmácia da UNIVASF – GQAF. The activity of β -lapachone and Lapachol on the biofilm in formation and already consolidated by the test of adhesion in microplate was evaluated. The synergistic effect between β -lapachone, oxacillin and gentamicin was also analyzed by the Checkerboard. Lapachol did not present antimicrobial activity against the isolates, however, β -lapachone was effective with MIC values ranging from 7.812 - 15.625 μg / mL, and MBC values ranging from 7.812 - 125 μg / mL. In the evaluation of the biofilm quantification 05 of the isolates presented strong biofilm production. In the evaluation of the biofilm interference with β -lapachone 04 isolates showed a reduction in the production of biofilm and the Lapachol was reduced by 10 isolates. In the consolidated biofilm 04 isolates were interfered with in the presence of β -lapachone and none in the presence of lapachol. In the checkerboard there was no synergism between β -lapachone and the antimicrobial drugs tested. In view of this, β -lapachone is a promising substance to be used in the composition of antimicrobial veterinary drugs. However studies of toxicity and cytotoxicity should complement its biological activity. Thus, study showed the importance and contribution of β -lapachone in the development of antimicrobial and mastitis therapy.

Keywords: Therapeutic alternative; *Staphylococcus aureus*; semisynthetic

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