

## **SYNERGISTIC EFFECT OF THYMOL AND ANTIMICROBIAL AGENTS AGAINST MULTIDRUG-RESISTANT *PSEUDOMONAS AERUGINOSA* STRAINS**

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*Pseudomonas aeruginosa* is an opportunistic and ubiquitous bacterium known to be highly antibiotic resistant and associated with severe infections in immunocompromised patients. Pseudomonas infections are treatable and potentially curable but bacteremic, pneumonia, sepsis, burn wound infections, and meningitis, generally have high mortality rates. The presence of virulence factors in *P. aeruginosa* contributes to its ability to grow in various host environments and it is constantly introduced into the hospital environment through food, visitors, and patients. Due to the increased bacterial resistance to multiple antibiotics, there are the concerns and the search for new therapeutic, in which the bioactive substances of natural origin represents an important source for obtaining these compounds. In this way, the aim of present study was to determine the synergistic effect of thymol in combination with antimicrobials agents against multiresistant *Pseudomonas aeruginosa* strains. Initially, it was determined the antimicrobial activity of thymol and five antimicrobials (polymyxin B, ceftazidime, piperacillin/ tazobactam, cefepime, and meropenem) against ten strains of *Pseudomonas aeruginosa* with a resistant phenotype previously determined by the disk diffusion method. The study of the interaction between thymol and antimicrobial agents was carried out by the checkerboard method. The criteria used to evaluate the synergistic activity were defined by the Index of Fractional Inhibitory Concentration (FIC index). Three strains (LFBM 01, LFBM 02, LFBM 16) showed a meropenem resistance profile and cefepime and a synergistic effect was observed between the thymol and meropenem or cefepime on these strains. The thymol associated with meropenem or cefepime acts synergistically by inhibiting multidrug-resistant *Pseudomonas aeruginosa* strains.

**Key words:** *Pseudomonas aeruginosa*, thymol, synergistic effect.

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