Antimicrobial potential of sulphonamide-derived synthetic compounds against clinical isolates of *Pseudomonas aeruginosa*

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Bacterial resistance to antimicrobials is a major public health problem. *Pseudomonas aeruginosa* is a pathogenic microorganism detected in around 15% of nosocomial infections worldwide and is primarily associated with respiratory and urinary infections. Among the current strategies to ensure effective treatments on the strength of boards is the investigation of new antimicrobial compounds through chemical modifications of drugs widely used in clinical routines. This study aimed to investigate, through *in vitro* experiments, the antimicrobial potential of TAS0 and JO2, synthetic compounds derived from sulfonamides, a chemical group of bacteriostatic drugs, against clinical isolates of *P. aeruginosa*. Clinical isolates of *P. aeruginosa* (n = 05), were isolated from tracheal secretions and had their identities confirmed using the VITEK® system according to the manufacturer's instructions. The minimum inhibitory concentration (MIC) was determined using broth microdilution assay and resazurin staining in independent triplicates, in which 1.5 x 10⁸ CFU (0,5 McFarland scale) of each clinical isolate was exposed to serial dilutions ranging from 1000 to 7,81 μg/mL. The MIC of TSA0 ranged from 7.81 to 1000 μg/mL, and the MIC for JO2 a CIM ranged from 15,63 to 500μg/mL. The MIC for some of the isolates was lower than the obtained for the standard drug. Our data indicated that TAS0 and JO2 compounds present in vitro efficacy against clinical isolates of *P. aeruginosa*. Nevertheless, it is still necessary to conduct in vivo studies to provide evidence to support further investigations to set them as new antimicrobial drugs for clinical use.

**Keywords:** *Pseudomonas aeruginosa*, sulphonamide-derived drugs, Antimicrobial drugs.

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