TITLE: POLYPRYROL AS ANTIMICROBIAL COMPOUND FOR THE TREATMENT OF INFECTIONS IN COMPANION ANIMAL

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ABSTRACT:
Bacterial skin infections in dogs and cats associated with the indiscriminate use of antibiotics have led to the emergence and spread of resistant pathogens, which have an effect on both human and animal health. This has driven the search for new therapeutic options in order to allow to veterinarian other treatment options. In this context, nanotechnology with recent studies on polypyrrole (PPy), an electrically conductive and biocompatible polymer, has suggested its antimicrobial potential. Therefore, the objective of this work was to evaluate the *in vitro* antimicrobial potential of polypyrrole on microorganisms isolated from dogs and cats. For the identification of the isolates in samples from several origins, such as hair, skin, ear, nasal secretion and ocular region, culture was performed on trypticase soy agar (TSA) medium, followed by Gram staining, as well as the biochemical tests catalase, oxidase, PAB, DNase and coagulase. In addition, the sensitivity profile was evaluated for penicillin, ampicillin, amoxicillin, cefoxitin, cefotaxime, ceftriaxone, streptomycin, ciprofloxacin, erythromycin, tetracycline, vancomycin, clindamycin, rifampicin and chloramphenicol. The Minimal Bactericidal Concentration (CBM) was performed with polypyrrole. Based on the results, it was possible to verify that all the isolates were gram-positive, catalase-positive and oxidase-negative. Most of the isolates were PAB-positive, Dnase-positive and coagulase-positive, indicating that most of the microorganisms are *Staphylococcus aureus*. It has been found a varied sensitivity profile and a CBM, mainly, between 250-500 mg for polypyrrole. Therefore, it can be concluded that the 29 samples evaluated in this work were identified as *Staphylococcus* spp., confirmed by biochemical tests and the minimum bactericidal concentration confirmed the potential of polypyrrole as an antimicrobial compound.

Keywords: *Staphylococcus* sp., resistance, biopolymer

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