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Abstract	:	<p>Microbial infection is a frequent complication of diabetic foot ulcers, with up to 82% of ulcers being infected at the initial stage of diabetes. Furthermore, the emergence of beta lactam resistant pathogens managed to eliminate the use of beta lactam antibiotics as a chemotherapeutic alternative. This further increases the amputation and mortality rate. Hence, the aim of this study is to evaluate antimicrobial efficacy of a ketone derivative 2-octylcyclopentanone against diabetic wound pathogens. The inhibitory activity of the compound was determined using disc diffusion and broth microdilution assay. Generally, 2-octylcyclopentanone showed broad-spectrum antimicrobial activity, particularly against beta lactam resistant pathogens. The compound showed comparably better antimicrobial activity than all reference antibiotics, including chloramphenicol, streptomycin, ampicillin and penicillin. In addition, the same compound also inhibits a clinically isolated <i>Pseudomonas aeruginosa</i> that was resistant to all reference antibiotics. The activity was microbicidal based on the low minimal lethality concentration recorded, particularly on MRSA, <i>P. aeruginosa</i> and <i>Candida utilis</i>. The killing efficiency of the compound was concentration dependent. During kill curve analysis, the inhibitory activity of 2-octylcyclopentanone was concentration and time-dependent. 99.9% of reduction of bacterial growth was observed. MRSA and <i>P. aeruginosa</i>, two significant diabetic wound infections, are totally inhibited by the molecule at a concentration of minimum lethality concentration...see more.</p>