**PC-06**

# Synthesis and Antibacterial Activity of Mono-, Bi-Cationic Pyridinium Derivates of 1,2,4-oxadiazoles and Triazoles on Resistant Bacteria Strains

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One of the main causes of mortality in humans continues to be infectious diseases. Scientists are searching for new alternatives due to the fast increase of resistance of some harmful bacteria to the frontline antibiotics.[1] To effectively treat pathogenic infections, it is crucial to design antibiotics that can prevent the development of pathogenic resistance.[2] For this purpose, a set of 39 quaternary pyridinium and bis-pyridinium salts with different lengths of side alkyl or fluorinated chains, heterocyclic spacer, and counter ion have been tested on diverse reference bacterial strains such as *S. aureus* and *E. Coli.* Subsequently, 6 salts, showing relevant MICs values, were tested on clinically isolated resistant strains of *S. aureus, S. epidermids, S. haemolyticus, K. pneumoniae, A. baumannii and P. aeruginosa.* Additional tests have been performed to assess if the minimum concentration detected by MIC assay may limit the growth of biofilms.

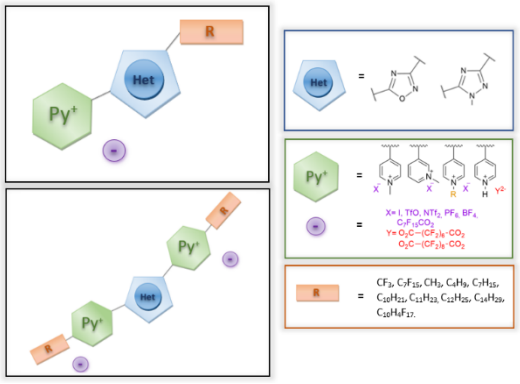


**Figure 1**: Pyridinium salts synthetized and tested for antibacterial activity.

References

[1] Blair, J.M.A.; Webber, M.A.; et.al., *Nat Rev. Microbiol.*, **2015**, 13, 42.

[2] Jennings, M.C.; Minbiole, K.P.C.; Wuest, W.M., *ACS Infect. Dis.*, **2015**,1, 288.