

Mehta PD, Pathak AK. Synthesis, characterization and *in vitro* antimicrobial activity of novel 4,4'-bis[3-chloro-4-aryl-azetidin-2-one-1-yl]diphenyl sulphones. *Bull. Pharm. Res.* 2011;1(3): 38-48.

**Abstract:** A novel series of 4,4'-bis[3-chloro-4-aryl-azetidin-2-one-1-yl]diphenyl sulphones 3(a-t) have been synthesized by appropriate synthetic route. Cyclocondensation of 4,4'-diaminodiphenylsulphone with various aromatic or heterocyclic aldehyde yield the schiff bases 2(a-t). These schiff's bases on condensation with chloroacetyl chloride in presence of triethylamine gave substituted 2-azetidinones 3(a-t). The structure of the newly synthesized compounds were confirmed by analytical and spectral (IR, <sup>1</sup>H-NMR and Mass) data. The entire test compounds (3a-t) were assayed *in vitro* for their antibacterial activity against two different strains of Gram-negative (*E. coli* and *P. aeruginosa*) and Gram-positive (*S. aureus* and *B. subtilis*) bacteria. The minimum inhibitory concentration (MIC) was determined for test compounds and for reference standards. The test compounds showed significant antibacterial activity against the microbial strains used, when tested *in vitro*.

**Key words:** 2-Azetidinone, Schiff base, Dapsone, Antibacterial activity.

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