

ABSTRACT

The demand of antibiotics for the treatment of various infections of humans caused by microbes has been increased with a great success. Over the past years there have been a large number of drugs that are used against the microorganism. Keeping in view the biological activity and medicinal importance of sulfonamides, the aim of this research was the synthesis of *N*-[3-(Benzenesulfonamido)propyl]benzenesulfonamide, its *N*-alkylated derivatives and evaluation of their anti-microbial activity. *N*-[3-(Benzenesulfonamido)propyl]benzenesulfonamide was synthesized by the condensation of 1,3-diaminopropane with benzenesulfonyl chloride in aqueous medium while maintaining the pH of the reaction medium at 8 to 9 and this reaction is cheaper and environmental friendly. *N*-alkylated derivatives were prepared by reacting *N*-[3-(Benzenesulfonamido)propyl]benzenesulfonamide with different alkylating agents and sodium hydride using DMF as solvent. The synthesized compounds were characterized by different techniques like X-ray crystallography, ¹H-NMR, FT-IR, Elemental analyzer and melting point. Evaluation of anti-microbial activity was carried out by employing Agar-well diffusion method against four bacterial strains, two Gram positive bacteria, *Enterococcus faecalis* & *Bacillus subtilis* and two Gram negative bacteria, *Escherichia coli* & *Pseudomonas aeruginosa*. Almost all the synthesized compounds exhibited appreciable anti-microbial activity in comparison to standard antibiotic ampicillin against these microbial strains.