Three ammonium salts of sulfathiazole: crystallography and anti-microbial assay

ABSTRACT

The crystal and molecular structures of three ammonium salts derived from sulfathiazole are described. In each case, the anion is in the azanide form, features an intramolecular S←O interaction, and adopts a U-shape. The structures of two cations, $[R(HOCH_2CH_2)NH_2]^+$, namely for R = Me (**1**) and iPr (**2**), are unprecedented in the crystallographic literature. Extensive hydrogen bonding is observed in all crystal structures and leads to a two-dimensional array for **1**, and three-dimensional architectures for each of **2** and **3** (R = CH_2CH_2OH). The salts exhibited anti-microbial activity against a range of Gram-positive and Gram-negative bacteria, and proved bactericidal toward *Vibrio parahaemolyticus*, but had no advantage over sulfathiazole itself.

Keyword: Crystal structure analysis; Hydrogen bonding; Salt; Sulfathiazole; X-ray diffraction