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Tetra Butyl Ammonium Cyanate Mediated Selective Synthesis of Sulfonyltriuret and Their Investigation towards Trypsin Protease Modulation

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Abstract : A pseudo peptide can mimic the biological or structural properties of natural peptides. They have become an increasing attention in medicinal chemistry because of their interesting advantages like more bioavailability and less biodegradation than compare to the physiologically active native peptides which increase their therapeutic applications. Many biologically active compounds contain urea as functional groups, and they have improved pharmacokinetic properties because of their bioavailability and metabolic stability. Recently we have reported a single-step synthesis of sulfonyl urea and sulfonyltriuret from sulfonyl chloride and sodium cyanate. But the yield of sulfonyltriuret was less around 40-60% because of the formation of other products like sulfonamide and sulfonylureas. In the present work, we mainly focused on the selective synthesis of sulfonyltriuret using tetrabutylammonium cyanate and sulfonyl chloride. More precisely, we are interested in the controlled synthesis of oligomeric urea mainly sulfonyltriuret as a new class of pseudo peptide and their application as protease modulators. The distinctive architecture of these molecules in the form of their pseudo-peptide backbone offers promise as a potential pharmacophore. The synthesized molecules have been screened on trypsin enzyme, and we observed that these molecules are the efficient modulator of trypsin enzyme.

Keywords : pseudo peptide, pharmacophore, sulfonyltriuret, trypsin
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