

ABSTRACT

This dissertation was inspired by some recent findings that cavity shaped molecular assemblies should have interesting biological properties as they can express their binding capability within itself or with complementary guests by non covalent interactions because of the inherent proximity effect. This philosophy has been used to design and execute novel cavity-shaped thia & aza arenes and thus effecting short and efficient stereocontrolled synthesis, analysis of resultant products followed by their biological studies, complexation studies and crystal structure evaluation.

Thus a short stereoselective synthesis of mutagenic dihydrodiols of hitherto unknown thia and aza arenes have been developed. The molecular assemblies derived from bisaryl ethers through the formation of bis-chloroaldehyde, dithiophene and their appropriate functionalization to design and execute host-guest interactions have been developed. Attempts have been made to develop stereoselective triene derivatives by McMurry coupling reaction of appropriate chloroaldehyde with a motto to design novel triene cyclization for cavity shaped arenes.