Abstract

Photoswitchable molecules can be switched optically between two or more stable forms that can exhibit different physical properties. Due to their ability to translateincoming non-invasive, monochromatic light stimulus to trigger macroscopic property changes, they show great prospect in molecular electronic and photonic devices, biological and medicinal applications, and other material chemistry applications. Incorporation of organic photochromic units in known transition metal complexes can provide control over the physiochemical properties of the complexes. Among the photo active building blocks available, azoheteroarenes especially arylazopyrazoles show efficient and reversible photo-isomerization (E-Z) in both solid and solution phases. Moreover, high half-life has been reported for the thermodynamically unstable cis-isomer of arylazopyrazoles. The visible changes in colour between the cis- and trans-isomers of arylazopyrazoles even in the solid state has led to their application in rewritable imaging techniques. Since pyrazole based chelating ligands have been known to form a variety of coordination complexes with a number of transition metals, we have attempted to incorporate photo-active arylazopyrazole units in some of the known chelating ligands and study the systematic tuning of the colour and photoswitching properties of the resulting photo-active complexes.