CONCLUSION

Supramolecular chemistry is becoming the choice of scientists belonging to all the fields. Its foundation lay, on the principle of host-guest theory involving non-covalent interactions. The supramolecular architecture being constructed either through the self-assembly of sub-units or by selective host-guest interactions.

Generations of supramolecules evolved in the order of cyclodextrin, crown ethers and the third generation of supramolecules is calixarenes. Calixarenes are widely used modules in supramolecular chemistry. Their structure conformation enables for different modifications, which give rise to different applications. Calixarenes are reported to be cations, anions, neutral molecules or even drug receptors.

Chromogenic calixarenes act as sensors for recognition of metal ions or even bigger moieties.

In the present investigation it is found that attaching coumarin and cinnamoyl chromophoric groups to the calix[6]arene gave a better selectivity and sensitivity for the extraction and determination for metals like Pb (II), Cd (II), Hg (II), As (III), Sb (III) and Bi (III), phenols and also neutral molecules like anti-hypertensive drugs like atenolol, propanolol and metaprolol.

The selectivity of these metals is based on their specific pH condition of extraction. The metals studied here gave lesser sensitivity and they got extracted in the
same pH range of 9 – 9.2 when extractions were carried out with cinnamohydroxamic acid. Attaching this chromophoric group to the calix[6]arene facilitated in the sequential separation of these metals by providing a vast difference in the pH range of extraction with virtually no interference. Hence, the transportation of Hg (II), Pb (II) and As (III) was carried out. Spectrophotometric determination of phenols and drugs (atenolol, propranolol and metaprolol) was carried out and the methods are sensitive than the reported methods.

To conclude, during this entire work it was found that calix[6]arene can work efficiently for determining bigger moieties when suitable chromophoric group is attached.