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Synthesis and Characterization of Chromogenic Calixarene

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ABSTRACT:

Nitrocalix[4]arene was synthesized and the corresponding calix(4)arene hydroxamic acid was prepared by coupling the partially reduced nitrocalix[4]arene with anthraquinone carbonyl chloride at a very low temperature [0-(-5)^{0}C] in dioxane medium with an aqueous suspension of sodium bicarbonate. Methyl calyx[6]arene was synthesized by acid catalysed reaction from p-cresol and formaldehyde in high yields, by using a simple, singlel step, condensation procedure. The parent Methyl calyx[6]arene hexaester was further hydrolysed to yield the corresponding acid. Styrene was substituted at the lower rim of methyl calix[6]arene through hydroxamic linkage obtained by coupling acid chloride of calix[6]arene derivative with partially reduced nitro styrene at a very low temperature [0-(-5^{0}C] in dioxane medium with an aqueous suspension of sodium bicarbonate. Calix[6]arene substituted at the methylene group by benzaldehyde was synthesized for the first time by acid catalyzed reaction from p-cresol and benzaldehyde in high yields, by using a simple, single step, condensation procedure. The synthesized calixarenes and their chromogenic derivatives were characterized by, elemental analysis and spectral techniques viz. FT – IR,^{1}H-NMR,^{13}C-NMR and FAB-MS.