Polyaromatic Derivatives of (3-Thienyl)Benzene

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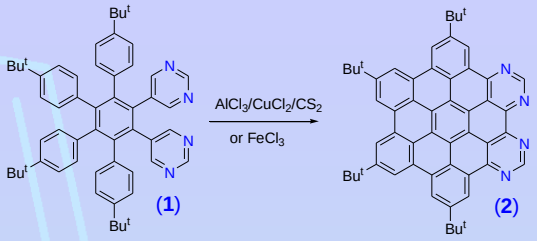
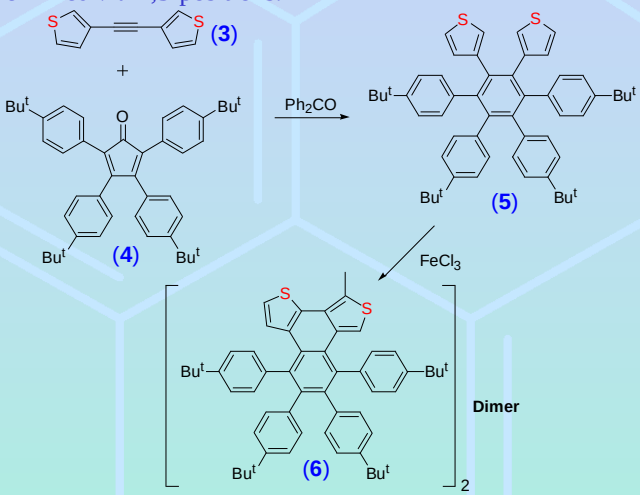
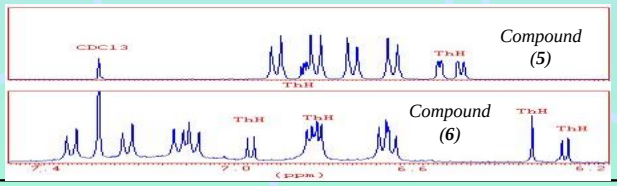
Introduction and Aim

Our group has reported the novel synthesis of N-based Superbenzene (**2**) by the cyclodehydrogenation (CDH) of (**1**). [1-3] This compound has fascinating photophysical properties. Our aim is to prepare a family of S-based polyaromatic hydrocarbons by CDH of uncyclised precursors (**5**), (**10**), (**11**) and (**13**). These are expected to exhibit a further remarkable chemical, electrochemical and optical properties.

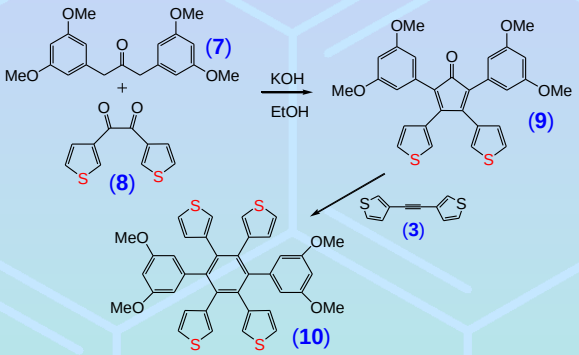


Reaction of (**5**) with $FeCl_3$ gave (**6**) where the thienyl groups are linked *via* 2,3-positions.

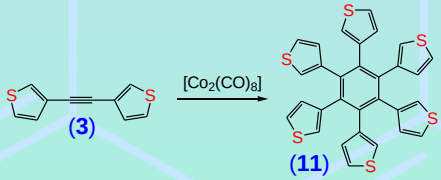




Diels-Alder reaction between (**3**) and (**9**) resulted in (**10**).

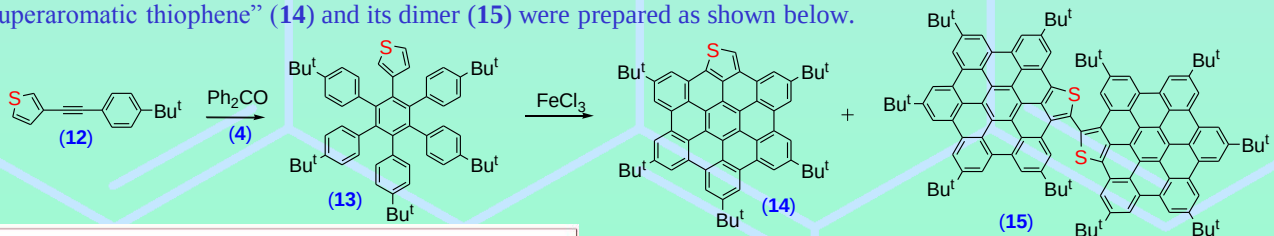


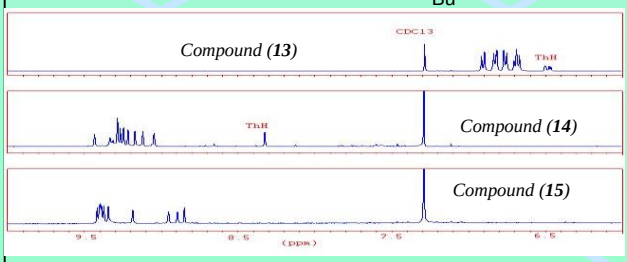
Cyclotrimerization of (**3**) gave hexa(thienyl)benzene (**11**).

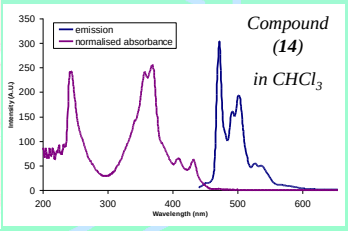


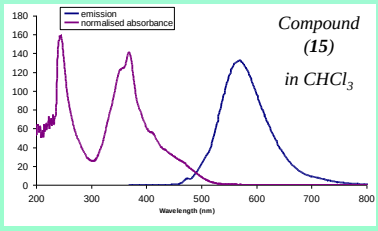
CDH of (**10**) and (**11**) gave a mixture of products including polymeric materials.

"Superaromatic thiophene" (**14**) and its dimer (**15**) were prepared as shown below.









References

1. S. M. Draper, *et al*, *J. Am. Chem. Soc*., 2002, **124**, 3486.
2. S. M. Draper, *et al*, *J. Am. Chem. Soc*., 2004, **126**, 8694.
3. D. J. Gregg, *et al*, *Inorg. Chem*., 2005, **44**, 5654.

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