

Laterally Stretched Polycyclic Aromatic Hydrocarbons: Synthesis of Dibenzophenanthroheptaphene and Tetrabenzotriphenylenopyranthrene Derivatives

B. Alameddine¹, R. S. Anju¹, S. Shetty¹, F. Al-Sagheer², S. Al-Mousawi², T. Jenny³

¹Gulf University for Science and Technology, Department of Mathematics and Natural Sciences, Gulf University for Science and Technology, ²Kuwait University, Chemistry Department, ³University of Fribourg, Chemistry Department

Efficient methods for the synthesis of dibenzophenanthroheptaphene (DBPH) and tetrabenzotriphenylenopyranthrene (TBTP) were developed. As a result, a series of unprecedented derivatives of DBPH (1a-c) and TBTP (2a-b) were conventionally obtained from the Scholl cyclodehydrogenation reaction of their respective tribenzopentaphene synthons. An alternative convergent synthesis of DBPH is also shown herein. The novel compounds were fully characterized by high-resolution matrix-assisted laser desorption ionization time of flight mass spectrometry (HR-MALDI-TOF-MS), nuclear magnetic resonance (NMR), UV-Vis absorption and emission spectroscopy. In addition, density functional calculations were carried out to get insight into the structure and electronic properties of these novel molecules, which corroborates the experimental observations.

