Facile synthesis and optical properties of extended TPA-Benzodifuran derivatives connected by cyano-vinylene junctions

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Résumé en anglais	Two new conjugated molecules based on triphenylamine – benzo[1,2-b:4,5-b']difuran moieties and integrating cyanovinyl bonds have been synthesized by using the new benzodifuran-acetonitrile synthon, easily and rapidly prepared in two steps from 2,2'-(2,5-dihydroxy-1,4-phenylene)diacetic acid. The electronic properties of the molecules were analysed by UV-Vis absorption and emission spectroscopies and cyclic voltammetry. The potential use of the molecules as donor materials for photovoltaic conversion were evaluated in simple bilayer solar cells using C60 as the acceptor materials. The comparison between the two derivatives reveals that the extension of the conjugated system with the insertion of furan cycles leads to a narrowing band gap, a better emission property, a direct access to dication state and an enhancement of the photovoltaic characteristics.
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