Supporting Information

Synthesis of Benzothiazole/Benzoxazole dendrimers with triazole as bridging unit and their application in Dye-sensitized solar cell

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Fabrication of cell assembly

The DSSC, whose photo active area being 1 cm$^2$ (1 cm x 1 cm), was fabricated on a conducting glass covered with Fluorinated Tin Oxide (F:SnO$_2$) (FTO) and nano-crystalline TiO$_2$ (degussa) cast by the procedure reported earlier.$^{26}$ The electrodes were immersed in a $5 \times 10^{-5}$ M solution of the photo sensitizer namely, cis-dithiocyanoto bis(2,2'-bipyridyl-4,4'-dicarboxylate)-ruthenium(II) (N3 dye) in ethanol for 20 h at room temperature before being washed with ethanol and dried in air. The dendrimer based electrolyte solution was injected into the space between two electrodes. The electrolyte solution was composed of $2.2 \times 10^{-4}$ M of KI, $3 \times 10^{-5}$ M of I$_2$, $8.5 \times 10^{-6}$ M of the dendrimer additives in DMF (10 mL) solvent. Subsequently, the platinum counter electrode was pressed on top of the polymer film without any special sealing. With the aid of a BAS 100A Electrochemical Analyzer, photovoltaic tests of the fabricated DSSCs were carried out by measuring the current–voltage (I–V) characteristics under illumination of 70 mWcm$^{-2}$ condition using 150W Xe lamp as light source.

$^1$H and $^{13}$C NMR spectra of compounds 7, 11, 13, 14, 16, 2, 4 and 5
Spectroscopic data

$^1$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 7
$^{13}$C NMR Spectrum (CDCl$_3$, 75 MHz) of the compound 7
$^1$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 11
$^{13}$C NMR Spectrum (CDCl₃, 75 MHz) of the compound 11
$^1$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 13
13C NMR Spectrum (CDCl3, 75 MHz) of the compound 13
\(^1\)H NMR Spectrum (CDCl\(_3\), 300 MHz) of the compound 14
$^{13}$C NMR Spectrum (CDCl$_3$, 75 MHz) of the compound 14
$^1$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 16
$^{13}$C NMR Spectrum (CDCl$_3$, 75 MHz) of the compound 16
$^1$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 2
$^{13}$C NMR Spectrum (CDCl$_3$, 75 MHz) of the compound 2
$^1$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 4
$^{13}$C NMR Spectrum (CDCl$_3$, 75 MHz) of the compound 4
$^{1}$H NMR Spectrum (CDCl$_3$, 300 MHz) of the compound 5
$^{13}$C NMR Spectrum (CDCl$_3$, 75 MHz) of the compound 5