New acetylacetone-polymer modified nanoparticles as magnetically separable complexing agents.

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Supporting information

4-vinylbenzyliodide

Sodium iodide (534 mg, 3.56 mmol) was placed in Schlenk flask under argon atmosphere. Subsequently 4ml of butan-2-one and 0.1 ml (0.71 mmol) of 4-vinylbenzylchloride were added. The reaction mixture was stirred at inert atmosphere for 4 days in room temperature with absence of sunlight. After completion of the reaction solvent was evaporated and then diethyl ether was added (15 ml). Afterwards mixture was washed 3 times with water. Organic layer were then dried under anhydrous Na2SO4 and filtrated. Filtrate was evaporated and the product as yellow oil was obtained (yield 85%).

\(^1\)HNMR (400MHz, CD\(_3\)Cl, \(\delta\), ppm): 7.35 (s, 4H), 6.70 (dd, 1H, \(J_1=17.57\)Hz, \(J_2=10.85\)Hz), 5.77 (d, 1H, \(J=17.60\)Hz), 5.27 (d, 1H, \(J=10.92\)Hz), 4.48 (s, 2H); \(^13\)CNMR (100MHz, CD\(_3\)Cl, \(\delta\), ppm): 138.8, 137.2, 136.3, 129.0, 126.7, 114.5, 5.86; FT-IR (ATR, \(\nu\)) cm\(^{-1}\): 3083, 3020, 2921, 2848, 1682, 1508, 1406, 1153, 1081, 987, 840, 720, 580.

IR Spectra:

![IR Spectra](image-url)
UV spectra (normalized to 1)
Luminescence spectra:
Normalised to 1

SEM/EDX:

MNP5+Er
$^1$H and $^{13}$C NMR

Monomer 1

Compound 2a
4-vinylbenzyl iodide
Monomer 2
Monomer 3

[Chemical structure image]

1 and 8

4 and 5

6 7b 7a 2 9 3
TEM and SEM photographs

MNP 5

MNP 11

MNP5

TGA, DTG and DSC curves

Determination of Tg temperature for polymer: