SUPPORTING INFORMATION

Straight-Chain Alkanes Template the Assembly of Water-Soluble Nano-Capsules

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^{1}H-NMR spectra of the complexes of $\mathbf{1}_2$ and hydrocarbons pentane through heptadecane

In all cases an excess of guest was added to host **1**. To 0.6 mL of 1 mM host **1** and 10 mM sodium tetraborate, 10 μL of the guest was added and the NMR spectra recorded (Figure S1). Integration of the host peaks versus the bound guest methyl peaks gave ratio of host to guest

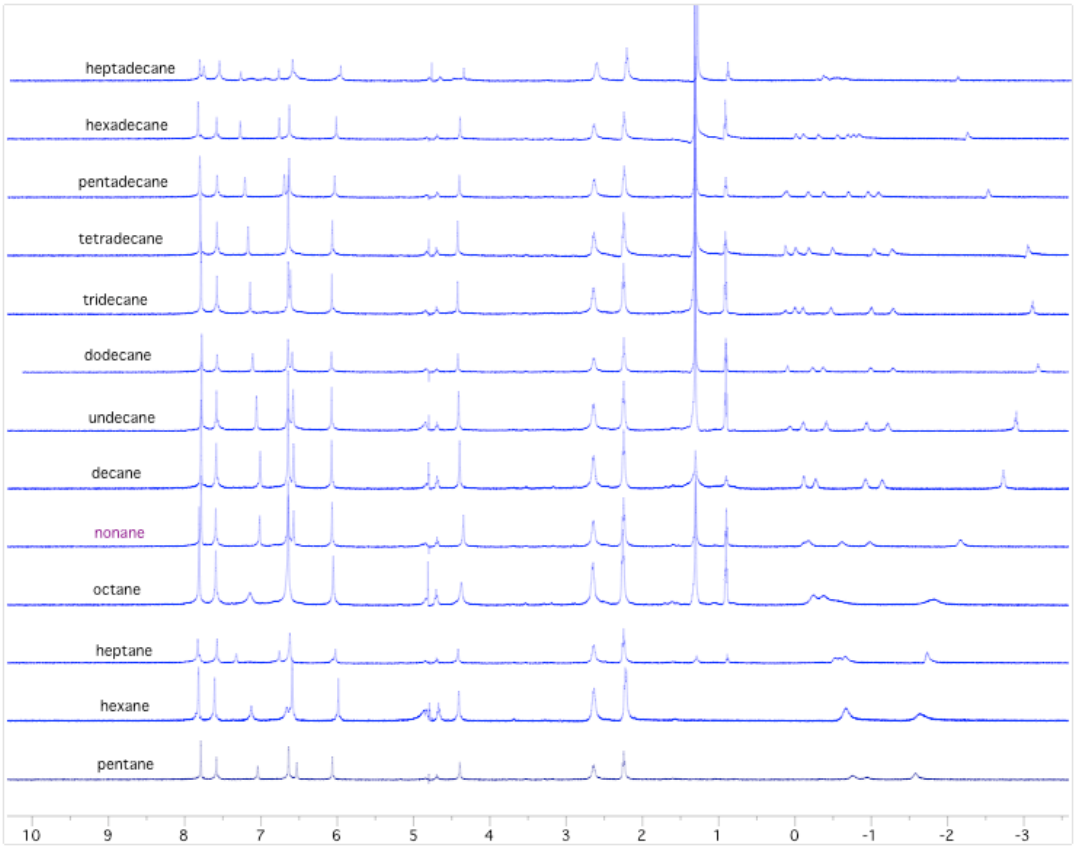

Figure S1: ^{1}H-NMR spectra of the complexes of $\mathbf{1}_2$ and hydrocarbons pentane through heptadecane.

Pulse-Gradient Stimulated Spin-Echo NMR Studies

Diffusion measurements were performed on an INOVA 500 MHz (Varian Inc.) instrument equipped with a Performa II pulsed field gradient (PFG) module capable of producing pulses up to 52 gauss/cm. The experiments were carried out on a 5 mm PFG indirect detection probe. The STE (stimulated echo) diffusion experiment using the Varian pulse sequence "pge" (stimulated option on) were performed with pulse gradients of 2 ms in duration separated by 155 ms. Calibration utilized D_2O samples with a diffusion constant of 1.88 10^{-5} cm^2/s. The data was analyzed using the optional Varian diffusion software. The experiments were run at 25 ˚C, at a host concentration of 1mM (in 10 mM sodium tetraborate). The given diffusion constants were an average of three measurements. This signal attenuation (Figure S2) follows the equation:

$$\ln (I_g/I_o) = -\gamma^2 D G^2 \delta^2 (\Delta - \delta/3)$$

Where: I_g is the observed intensity

I_o is the reference intensity

D is the diffusion constant

γ is the gyromagnetic ratio of the observed nucleus

G is the gradient strength (arrayed in the experiment)

δ is the length of the gradient

Δ is the diffusion time

The slope of the plot ln(I/Io) versus the square of the gradient strength yielded the diffusion constant. This calculation is performed automatically by the diffusion macro from Varian, and gave for example a value of $D = 1.82 \times 10^{-6}$ cm^2s^{-1} for free host **1**.

COSY ^{1}H-NMR of the complex of $\mathbf{1}_2$ with dodecane

The proton COSY for the complex between $\mathbf{1}_2$ and dodecane is shown in Figure S2. This COSY is representative of the spectra recorded for the other complexes.

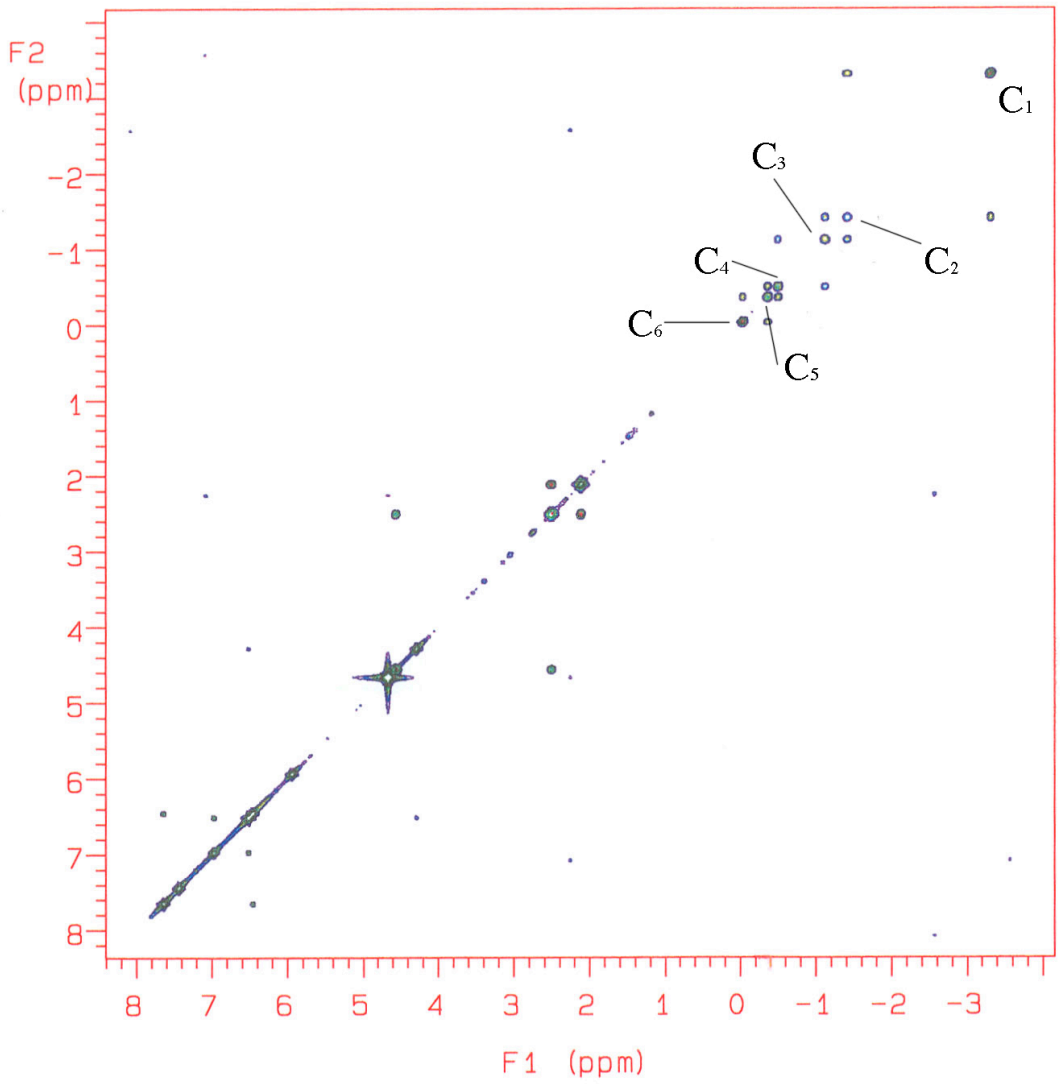

Figure S2: COSY ^{1}H-NMR of the complex of $\mathbf{1}_2$ with dodecane. C-atoms of the terminal methyl group or methylene groups are indicated.

NOESY ^{1}H-NMR of the complex of $\mathbf{1}_2$ with dodecane (bound guest peak region)

The proton NOESY for the complex between $\mathbf{1}_2$ and dodecane is shown in Figure S3. This NOESY is representative of the spectra recorded for the other complexes.

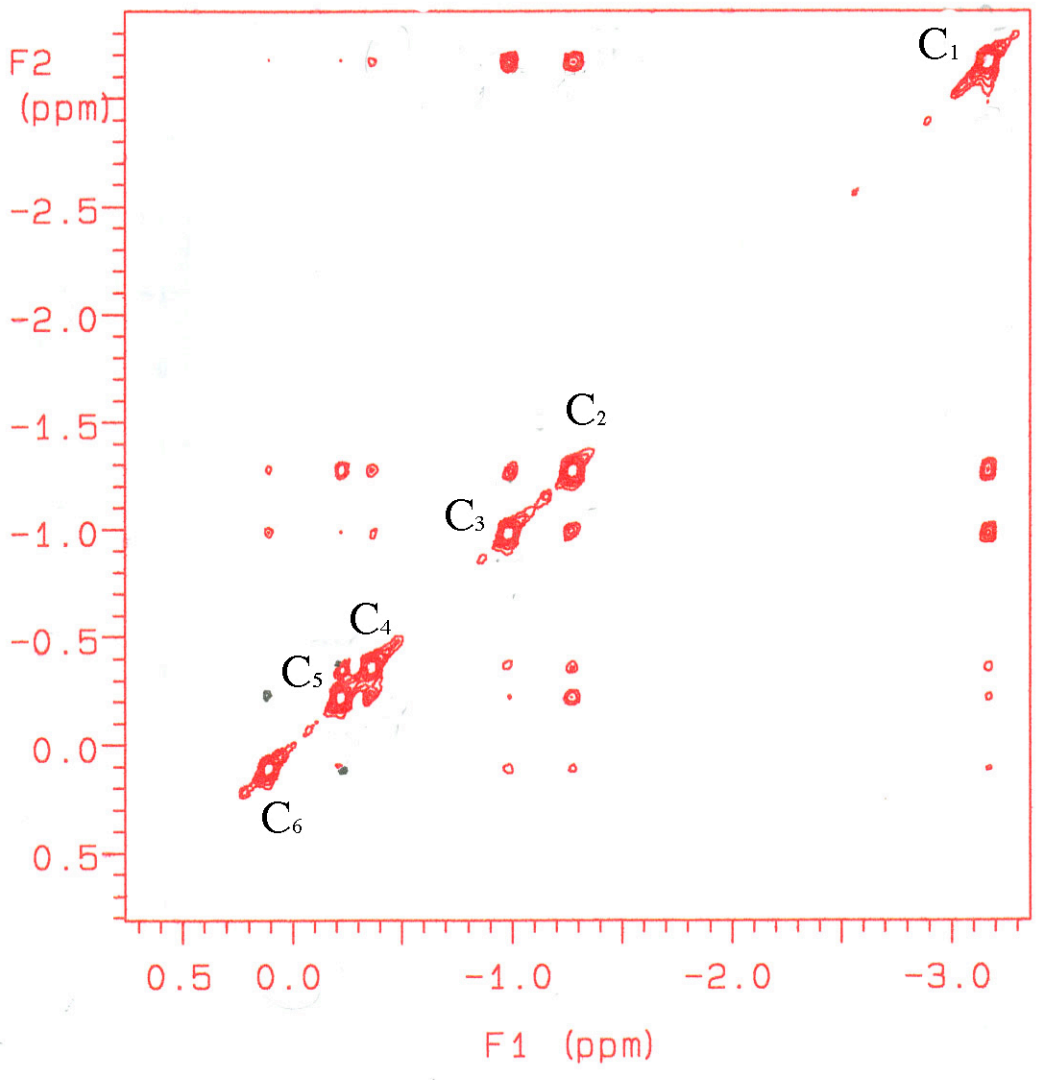

Figure S3: NOESY ^{1}H-NMR of the complex of $\mathbf{1}_2$ with dodecane (bound guest peak region). C-atoms of the terminal methyl group or methylene groups are indicated.