

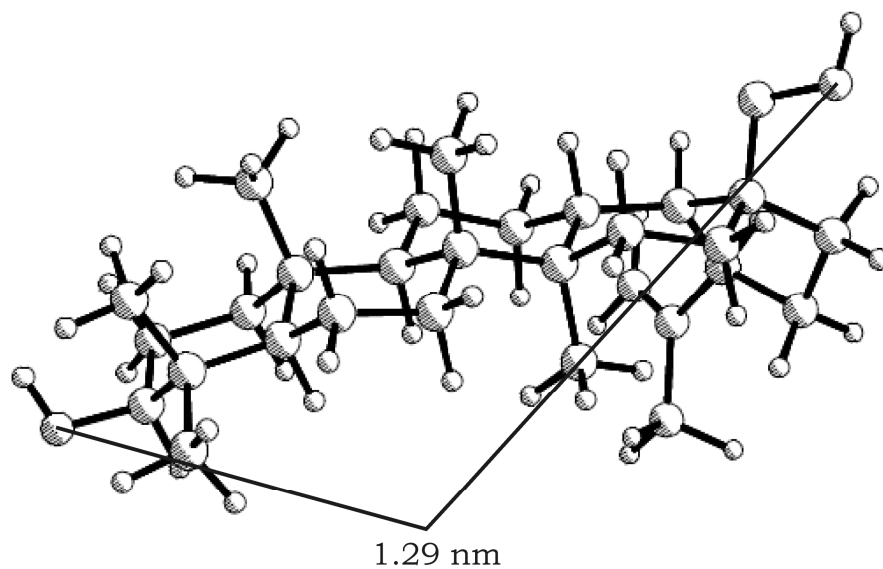
# Supporting Information

## **Hierarchical self-assembly of a renewable nano-sized pentacyclic dihydroxy-triterpenoid betulin yielding flower-like architectures**

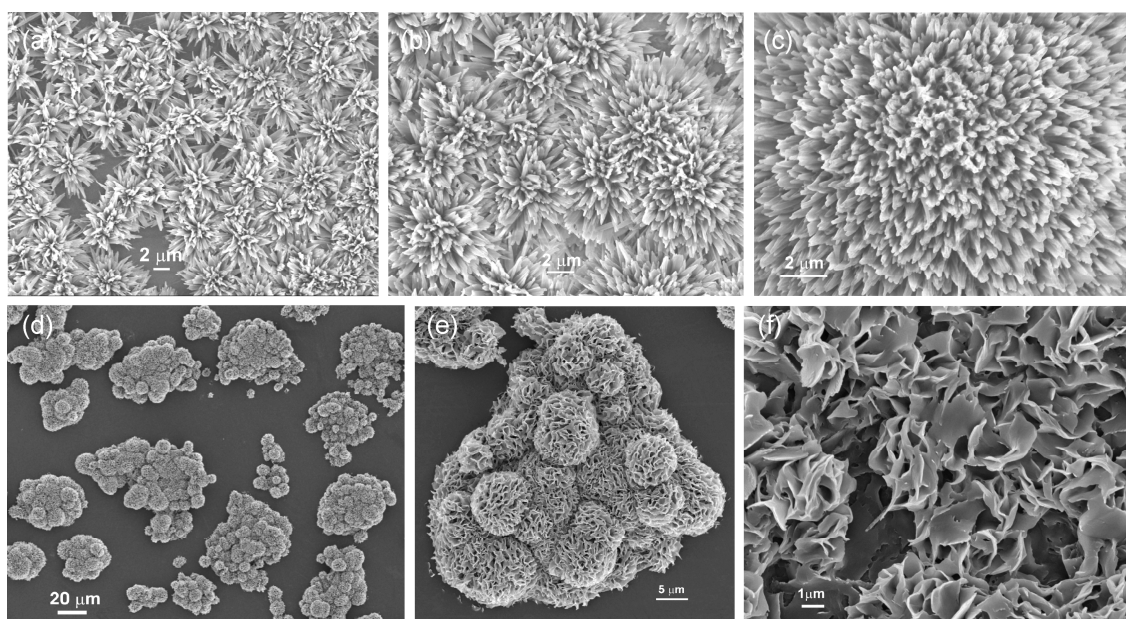
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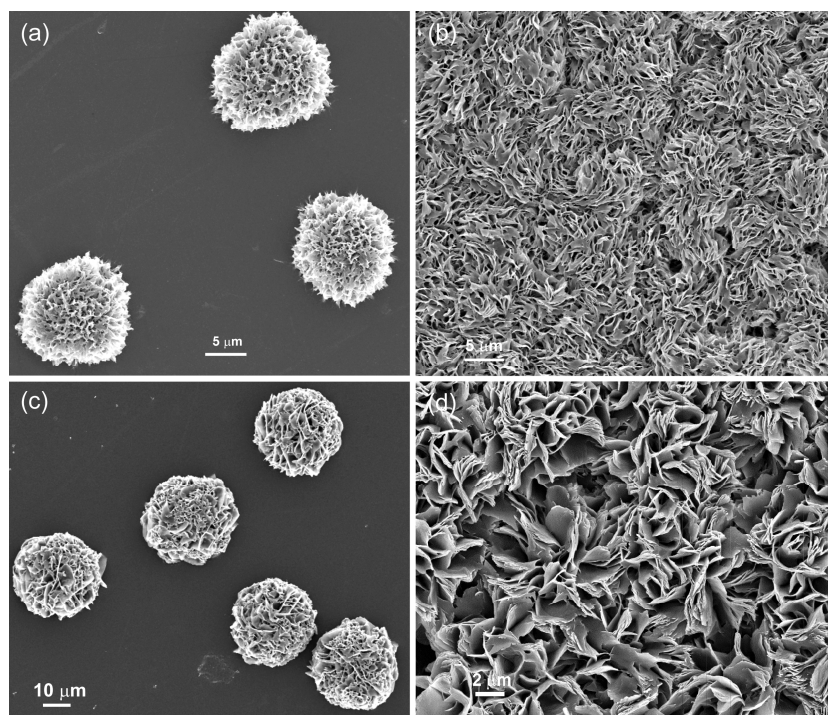
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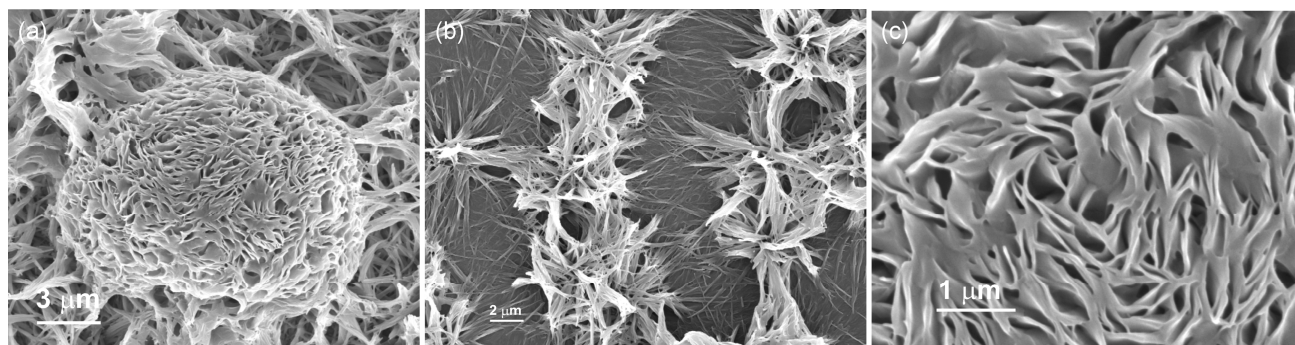
**Figure S1:** Energy minimized structure of betulin **1** using MMX force field as implemented in PCMODEL version 9.2 (serena software)<sup>®</sup>.



**Figure S2:** FESEM images of dried self assemblies of betulin: (a,b,c) prepared from *p*-xylene liquid (1% w/v) and (d,e,f) prepared from *o*-xylene liquid (1% w/v).

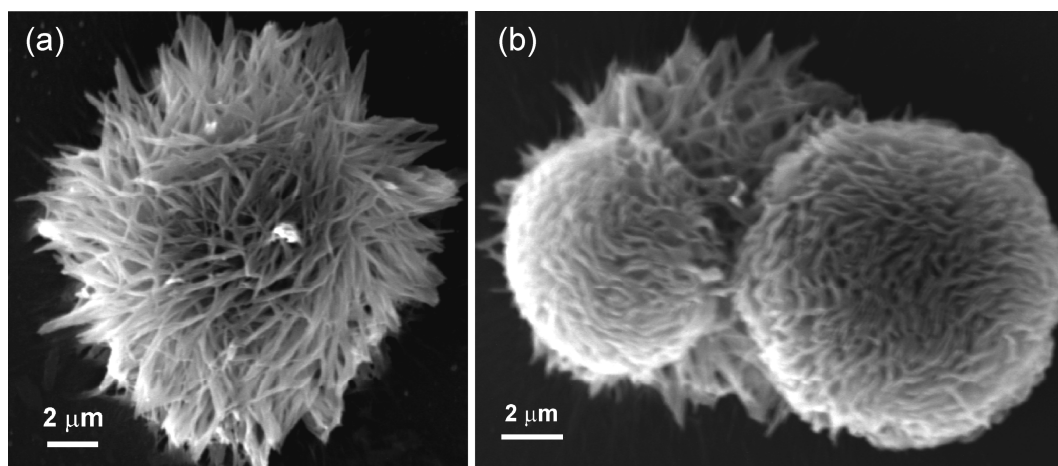


**Figure S3:** FESEM images of dried self assemblies of betulin: (a, b) prepared from *m*-xylene liquid (1% w/v) and (d, e, f) prepared from mesitylene liquid (1% w/v).

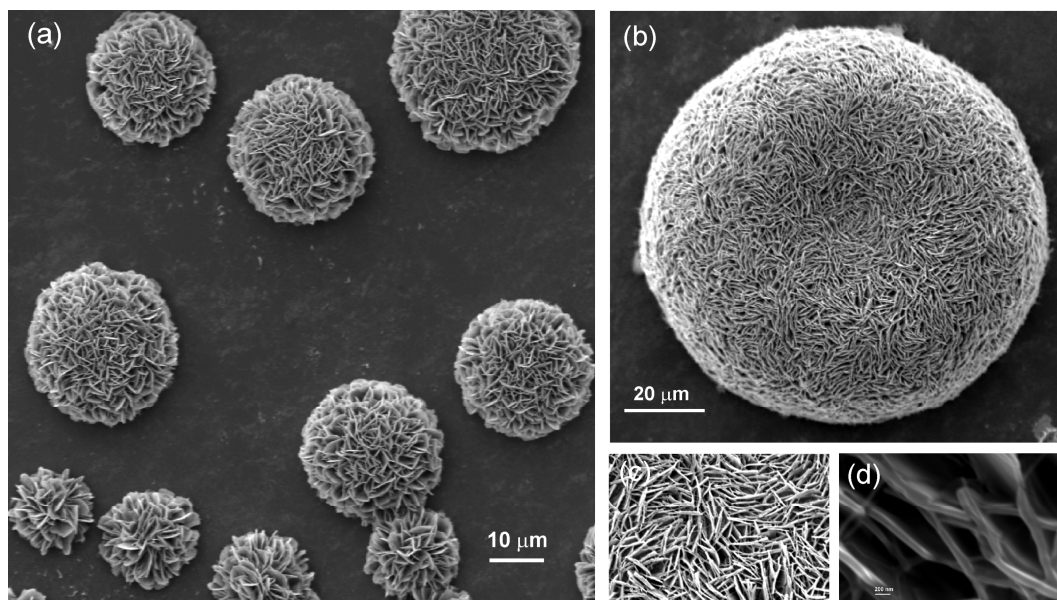


**Figure S4:** (a,b,c) FESEM images of dried self assemblies of betulin prepared from *o*-dichlorobenzene liquid (1% w/v).

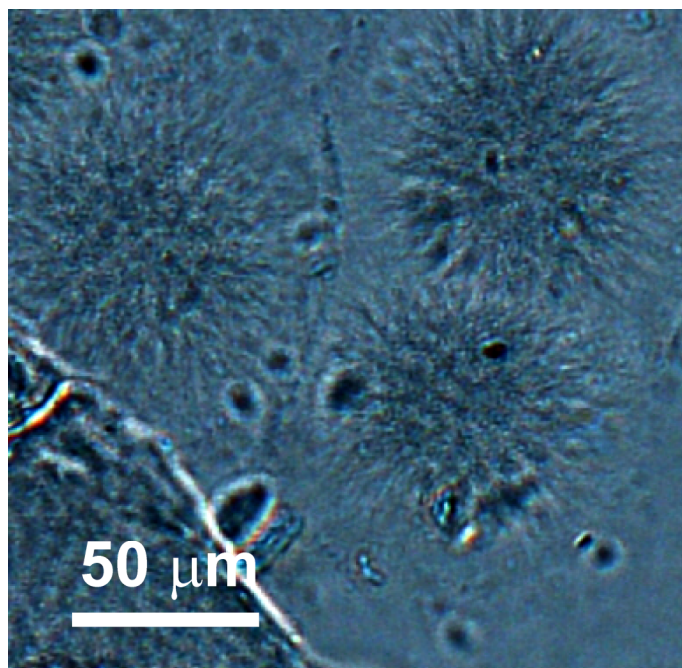




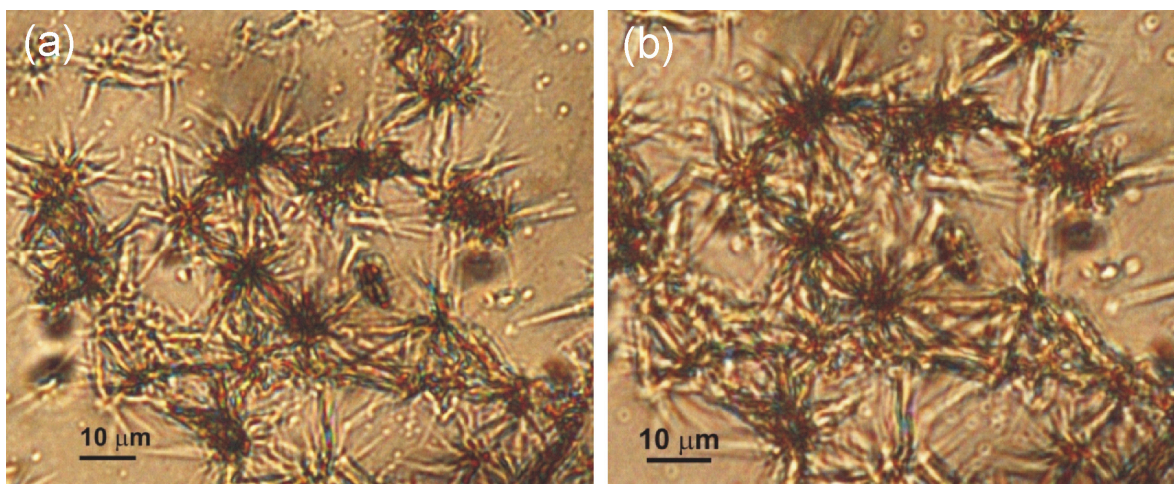
**Figure S5:** (a,b) SEM images of dried self-assemblies of betulin prepared from isopropanol liquid (1% w/v).



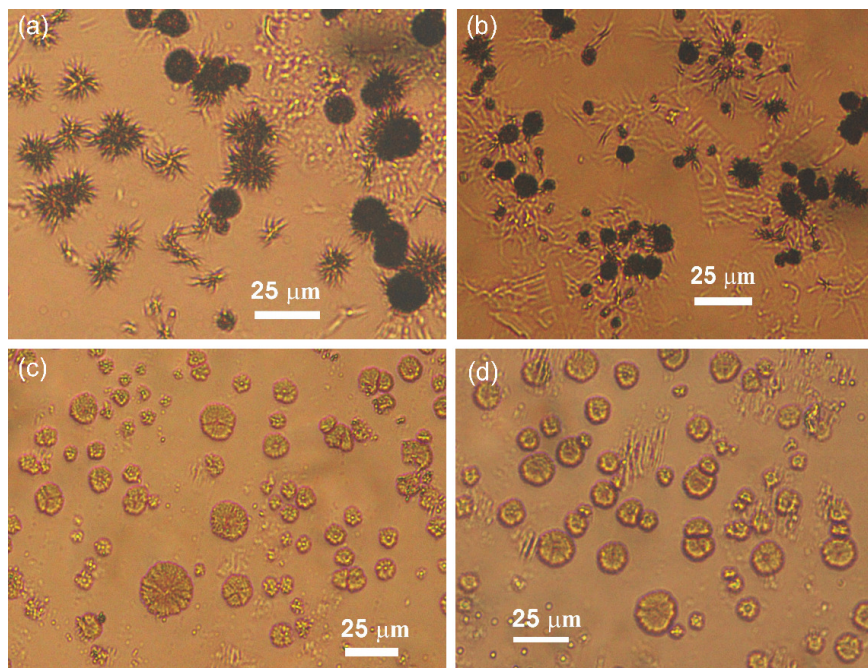
**Figure S6:** (a-d) SEM images of dried self-assemblies of betulin prepared from mesitylene liquid (2 % w/v).



**Figure S7:** OM images of betulin in *o*-xylene in native state



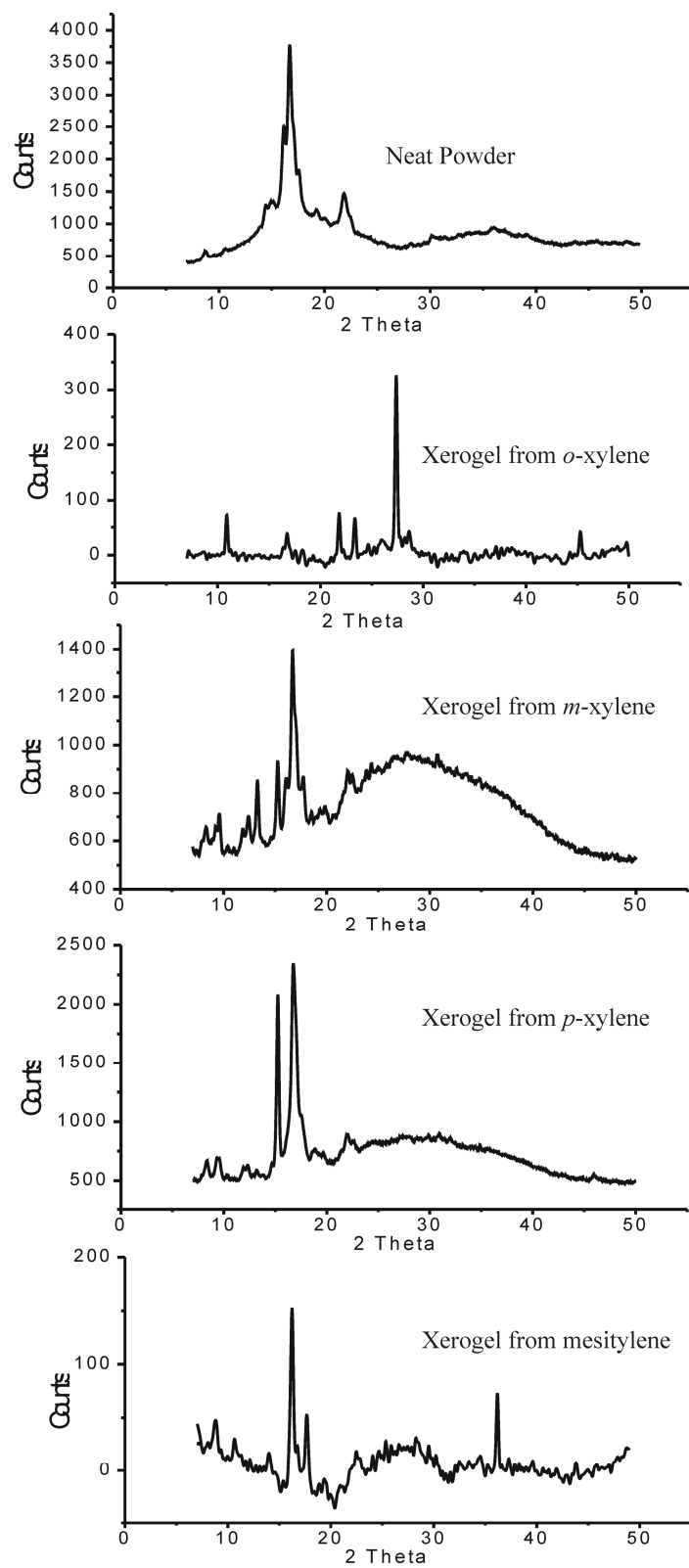
**Figure S8:** (a, b) Optical microscopy images of **1** in *m*-xylene.



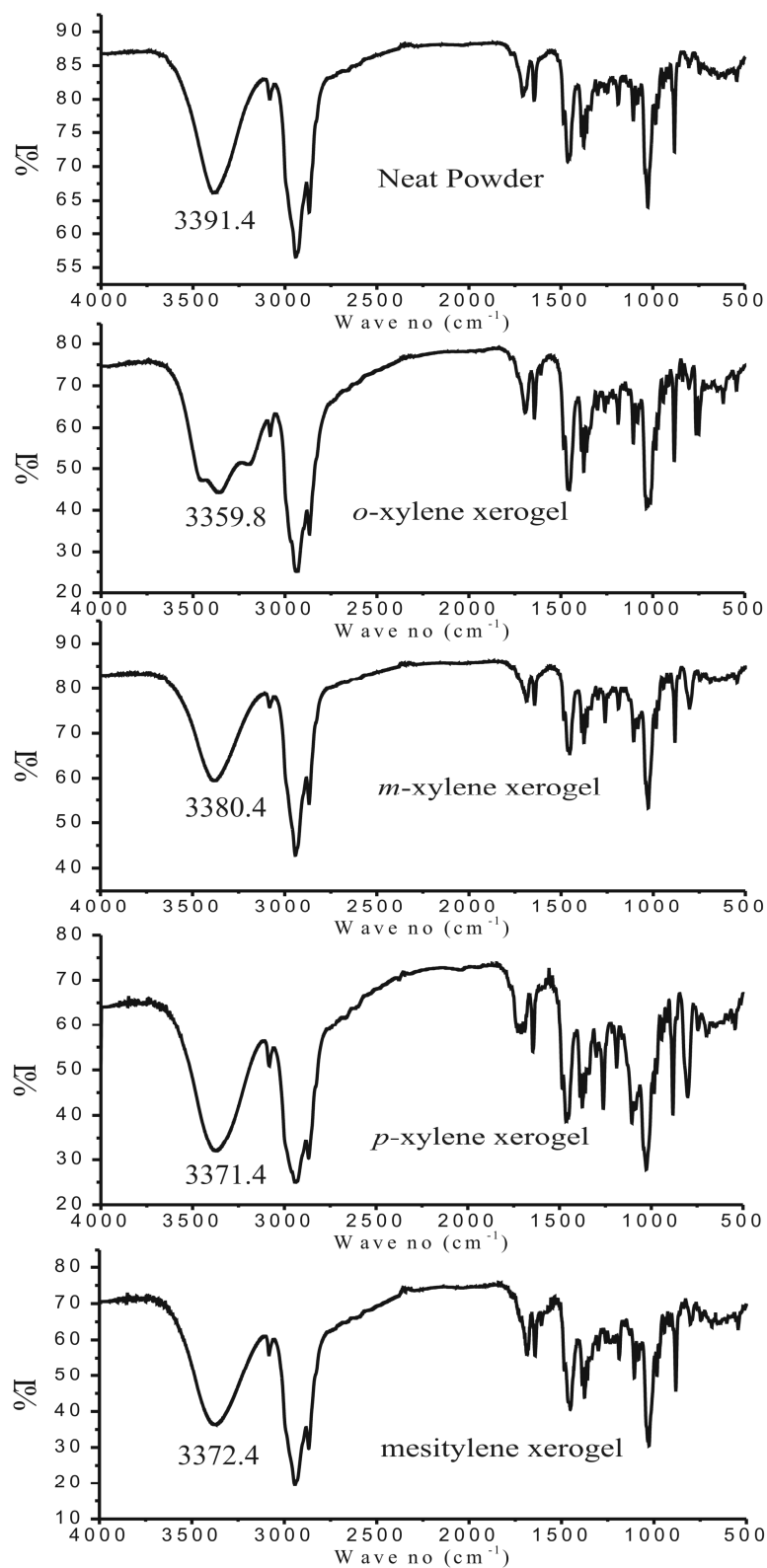
**Figure S9:** Optical microscopy images of dried self assemblies of **1**: (a, b) in *o*-dichlorobenzene (1 % w/v); (c, d) in 2-propanol (1 % w/v).

**Table S1** Wide angle X-ray diffraction data of neat powder and dried self assemblies under different condition

Sample	d (Å)
Neat powder	1.17, 0.973, 0.709, 0.638, 0.615, 0.587, 0.536
Dried self-assemblies of <b>1</b> prepared from <i>o</i> -xylene liquid	1.19, 0.943, 0.876, 0.820, 0.614, 0.583, 0.562, 0.533, 0.489, 0.472, 0.442, 0.417, 0.398, 0.232
Dried self-assemblies of <b>1</b> prepared from <i>m</i> -xylene liquid	1.24, 1.07, 0.984, 0.866, 0.827, 0.774, 0.674, 0.639, 0.616, 0.580, 0.555, 0.518, 0.468, 0.433, 0.425, 0.41
Dried self-assemblies of <b>1</b> prepared from <i>p</i> -xylene liquid	1.23, 1.09, 0.996, 0.861, 0.830, 0.773, 0.674, 0.614, 0.547, 0.468, 0.41
Dried self-assemblies of <b>1</b> prepared from mesitylene liquid	1.16, 1.09, 0.965, 0.846, 0.735, 0.704, 0.668, 0.634, 0.614, 0.582, 0.544, 0.532, 0.418

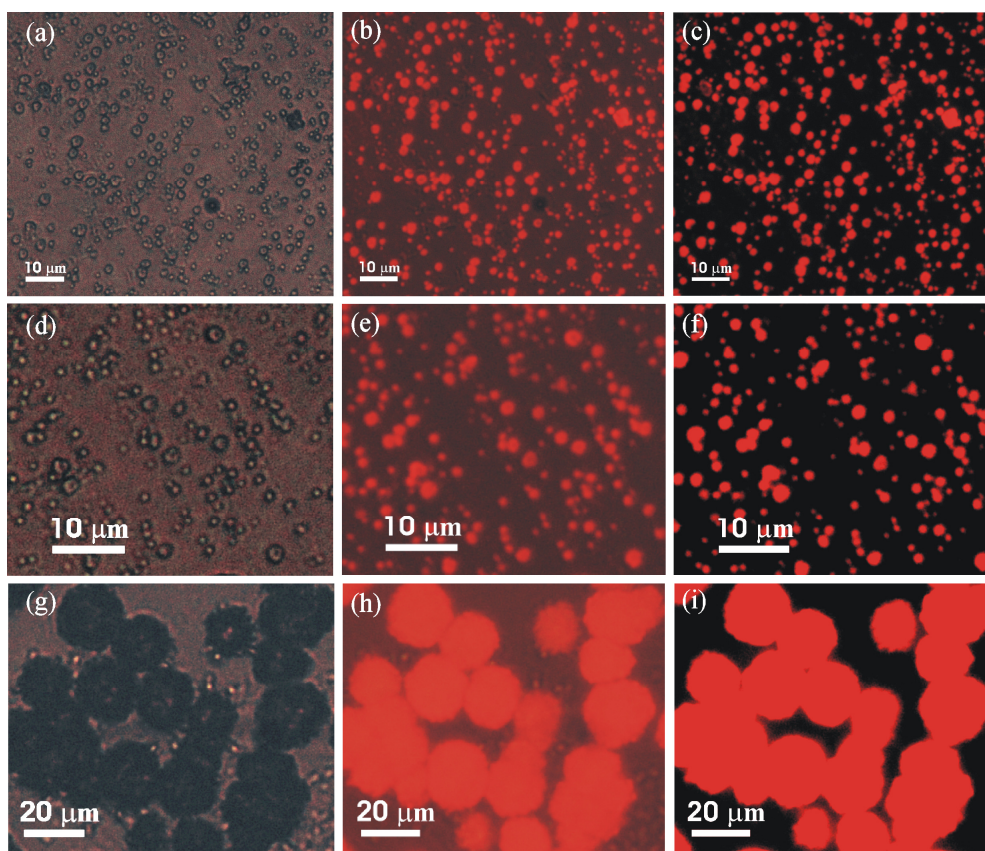


**Figure S10:** XRD pattern of neat powder and dried self assemblies prepared from different organic liquids (as indicated).

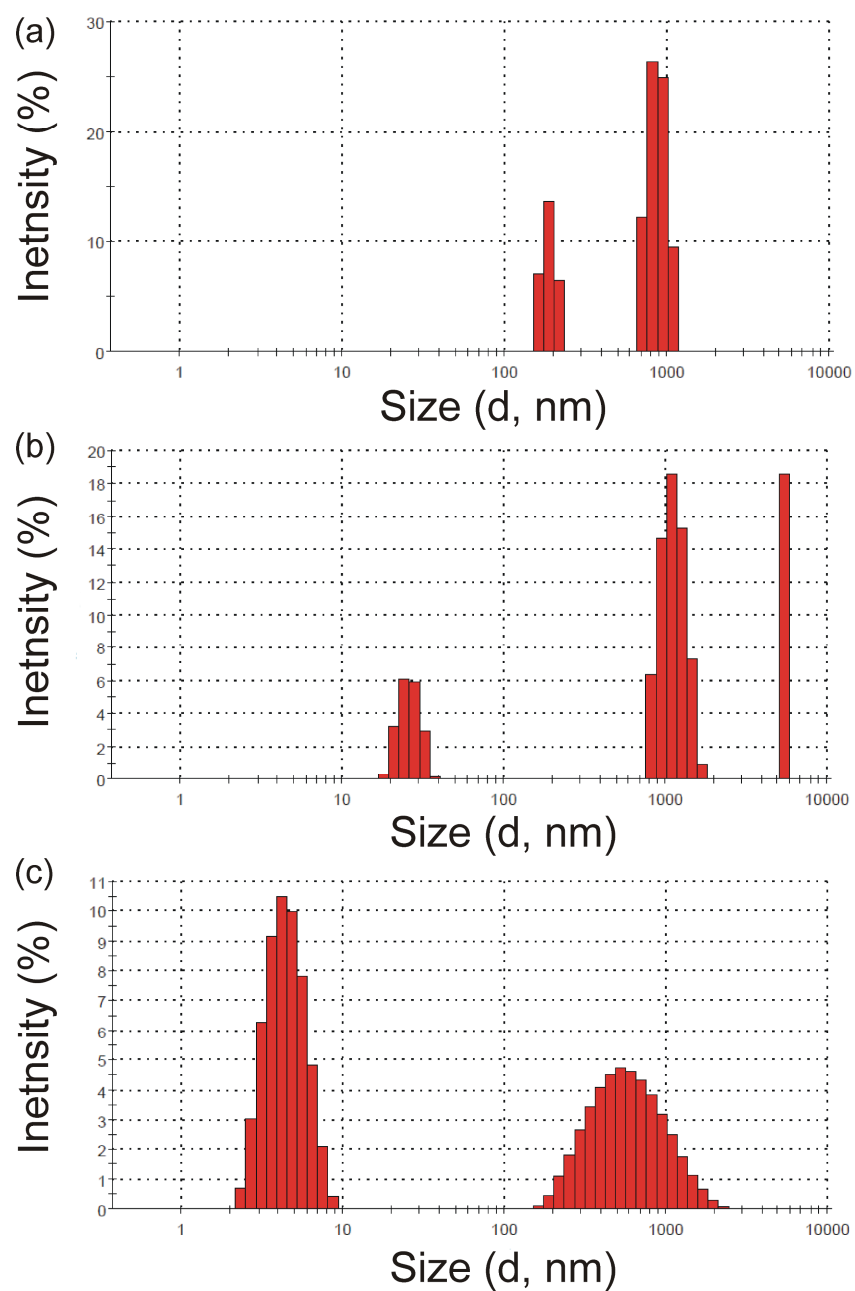


**Figure S11:** FTIR spectra of neat powder of betulin and xerogels obtained from different organic liquids (as indicated).





**Figure S12:** POM images of betulin loaded with rhodamine B in isopropanol (0.42 mM): (a, d, g) under normal light, (b, e, h) overlay images and (c, f, i) fluorescence images.



**Figure S13:** Statistical graph of **1** in (a) mesitylene (0.5 % w/v), *m*-xylene (0.25 % w/v) and *o*-xylene (0.25 % w/v) liquids.

