Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supporting information

Vesicular self-assembly of a natural ursane-type dihydroxy-triterpenoid corosolic acid

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1. Method for sample preparation

Optical microscopy: For optical microscopy studies, 5-10 µL of the sample was taken on a glass slide and covered with a cover slip and observed under normal light in NIKON ECLIPSE LV100POL instrument.

Epifluorescence microscopy: For epifluorescence microscopy studies, a colloidal sample (5 µL) was taken on a glass slide and covered with a cover slip and observed both under blue and green fluorescence light using NIKON ECLIPSE LV100POL instrument.

Fluorescence emission spectra: For fluorescence emission studies, the sample was taken in 4 mL cuvette and the spectra was recorded in a HITACHI 7000 spectrophotometer.

Scanning electron microscopy: SEM measurements were performed on a JOEL-SEM scanning electron microscope with tungsten filament as electron source. For SEM analysis, a colloidal suspension of self-assembled corosolic acid was prepared in organic binary liquid mixture. 5 µL of freshly prepared each of the solutions were drop-casted on aluminium surface and allowed to dry overnight at room temperature and then under reduced pressure for 30 min. Before recording the morphology, gold coating on the sample was carried out by sputtering method in sputter coater.

Transmission electron microscopy: For High Resolution Transmission Electron Microscope (HRTEM) studies, 10 µL of a dilute colloidal sample was placed on carbon-coated copper TEM grids (300 mesh), allowed it to dry in air for 24 h and then under reduced pressure about 24 h. HRTEM study was performed using JEOL instrument.

Atomic force microscopy: The AFM measurements were performed by using VEECO, dicp-II, Model No-AP0100. The imaging was done under ambient conditions. For AFM analysis, 10 µL of freshly prepared solution of self-assembled corosolic acid was drop-casted on a cover slip and allowed it to dry in air for 48 h and then under reduced pressure about 24 h and studied .

2. Energy minimized structure of corosolic acid

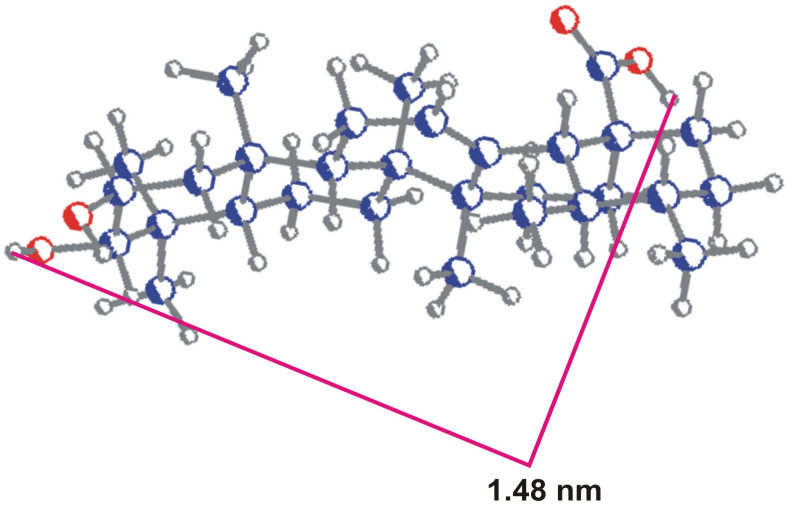


Fig S1: Energy minimized Structure of Corosolic Acid **1** using MMX force field as implemented in PC MODEL version 9.2 (Serena Software).

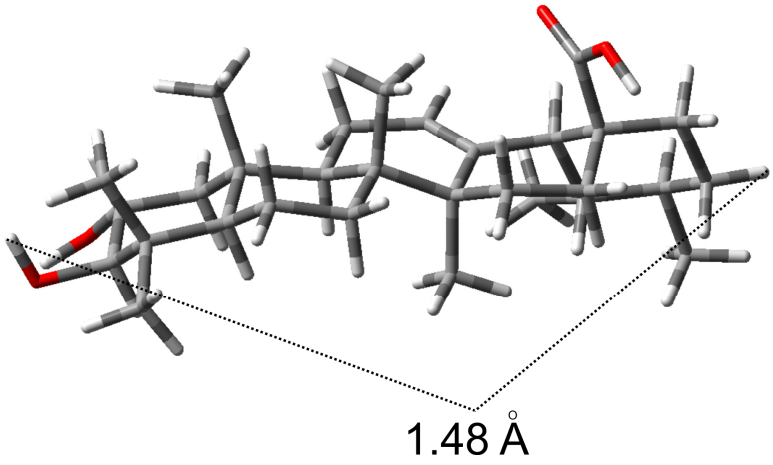


Fig S2: Energy minimized structure of corosolic Acid **1** obtained by DFT calculation using Gaussian 09 software.

3. Histogram from AFM images of the self-assemblies in DMF-water

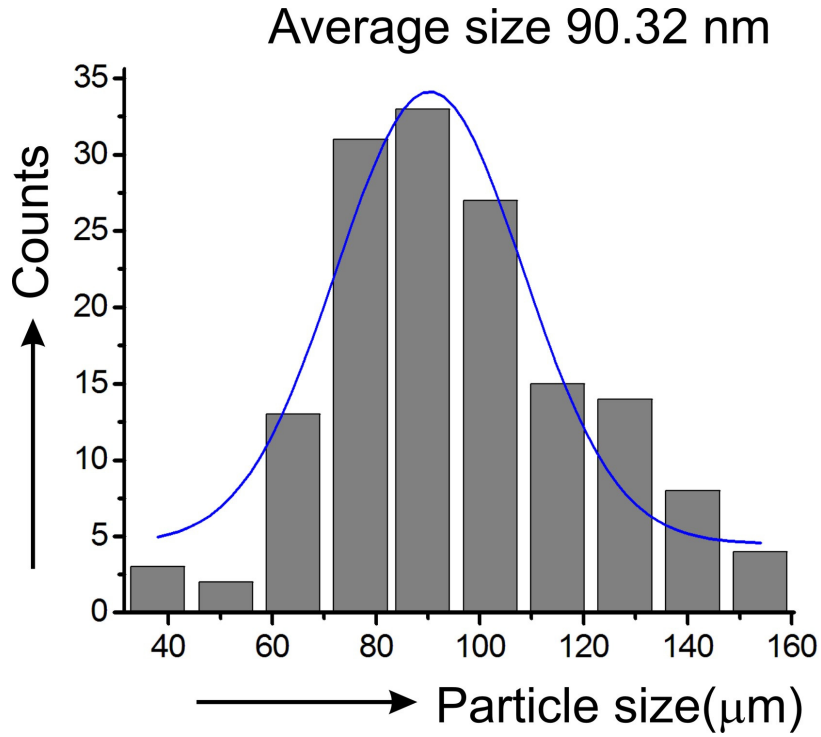


Fig S3: Histogram of self-assemblies of **1** in DMF-water (2:1, 1.69 mM) observed by AFM.

4. AFM images of dried self assemblies of 1 in ethanol-water

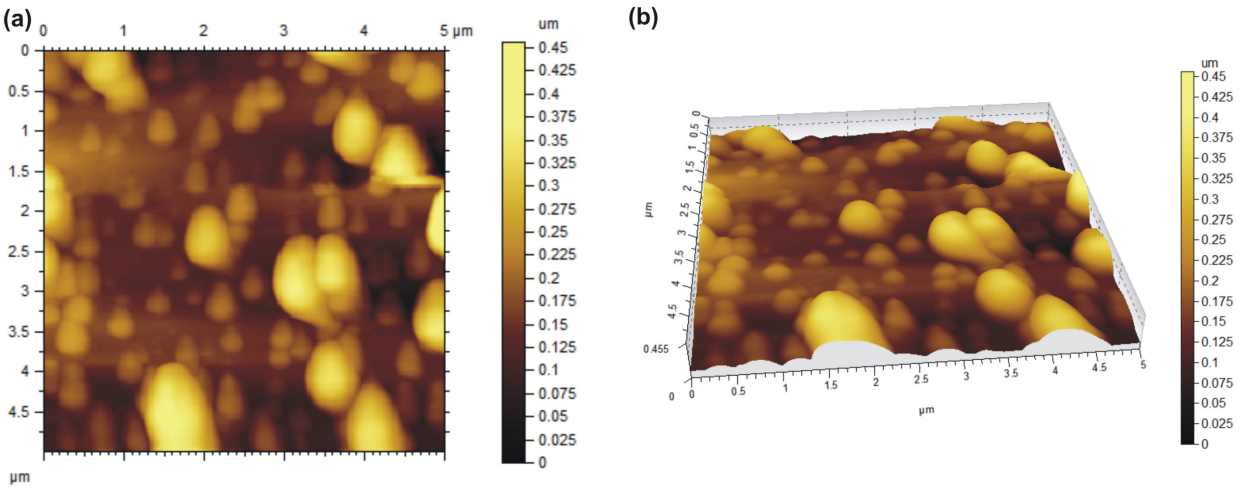


Fig S4: AFM images (a-2D, b-3D) of dried self assemblies of **1** in ethanol-water (3:1, 1.69 mM).

5. Histogram from FESEM images

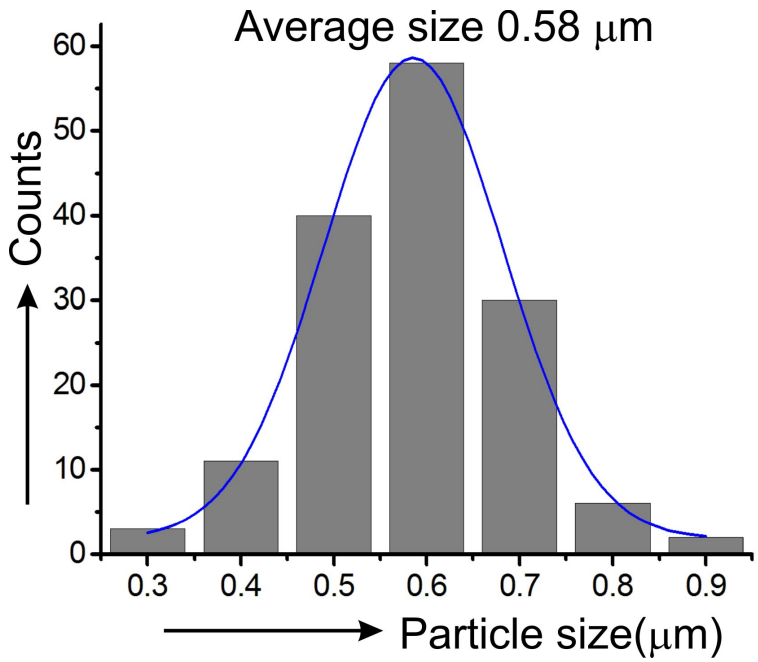


Fig S5: Histogram of self-assemblies of **1** in ethanol-water (3:1, 4.23 mM) observed by FESEM.

6. Histogram from optical images

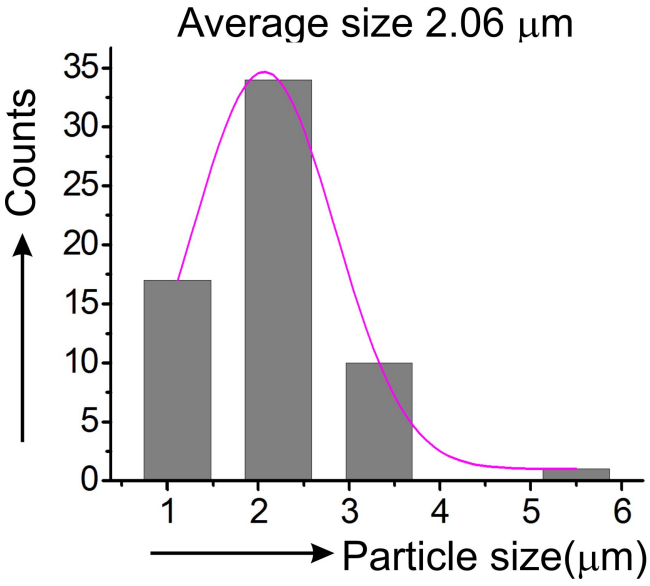


Fig S 6: Histogram of self-assemblies of 1 in ethanol-water (3:1, 46.1mM) observed by optical microscope.

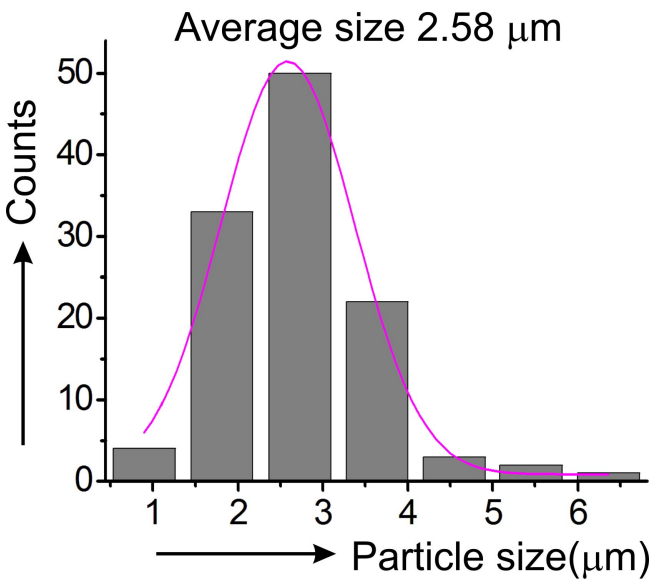


Fig S7: Histogram of self-assemblies of **1** in THF-water (1:1, 34.9 mM) observed by optical microscope.

7. X-ray diffraction study

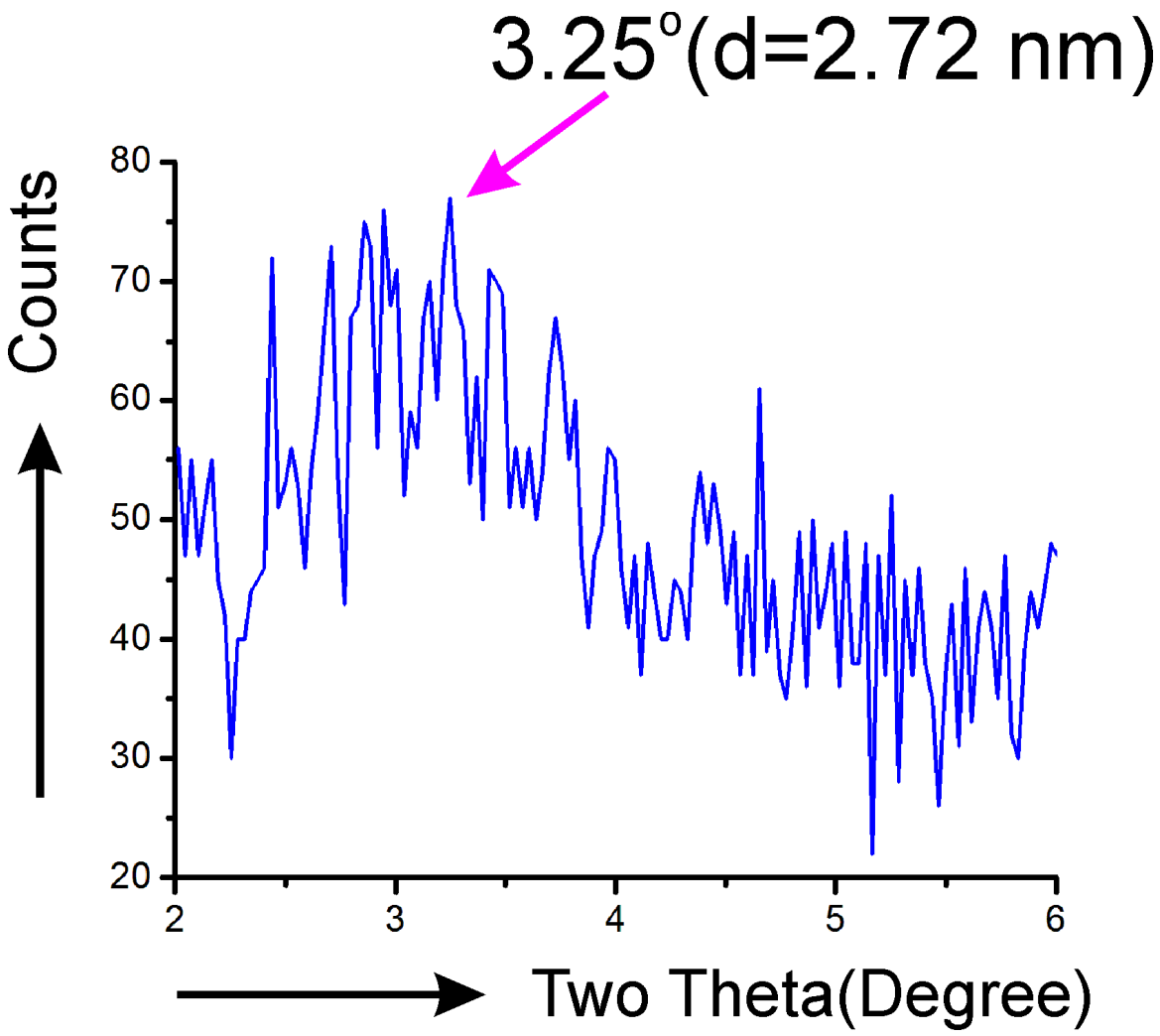


Figure S8. X-ray diffraction studies of the self-assemblies of 1 (2:1, 1.69 mM) in DMF-water (1:1 v/v).

8. FTIR spectrum of corosolic acid

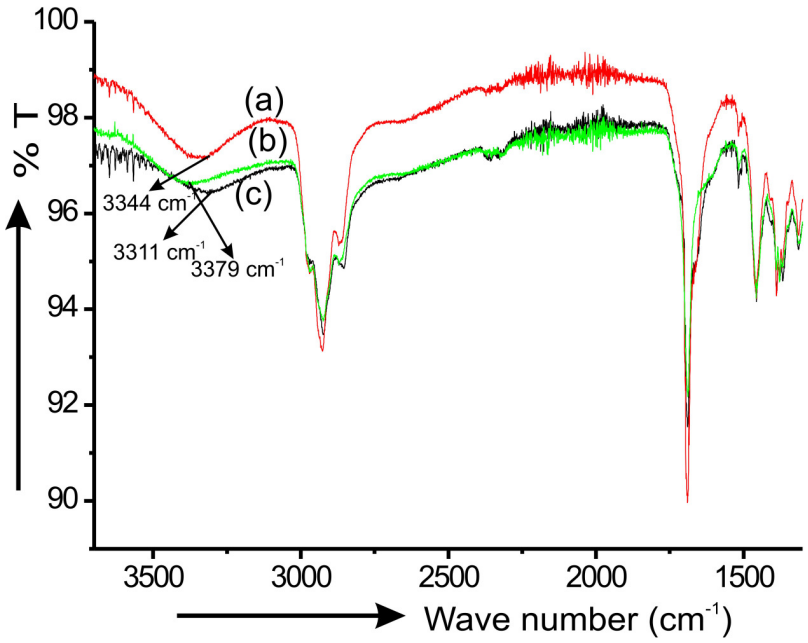


Fig S9: FTIR spectrum of (a) Corosolic acid in (3:1) ethanol - water, (b) neat powder of **1**, (c) Corosolic acid in (2:1) DMF-water system.

9. Fluorescence spectra

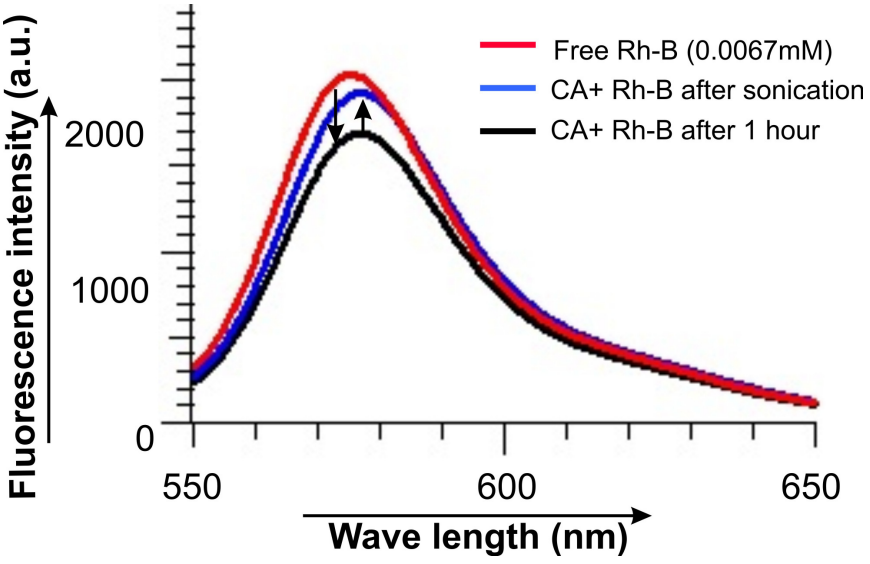
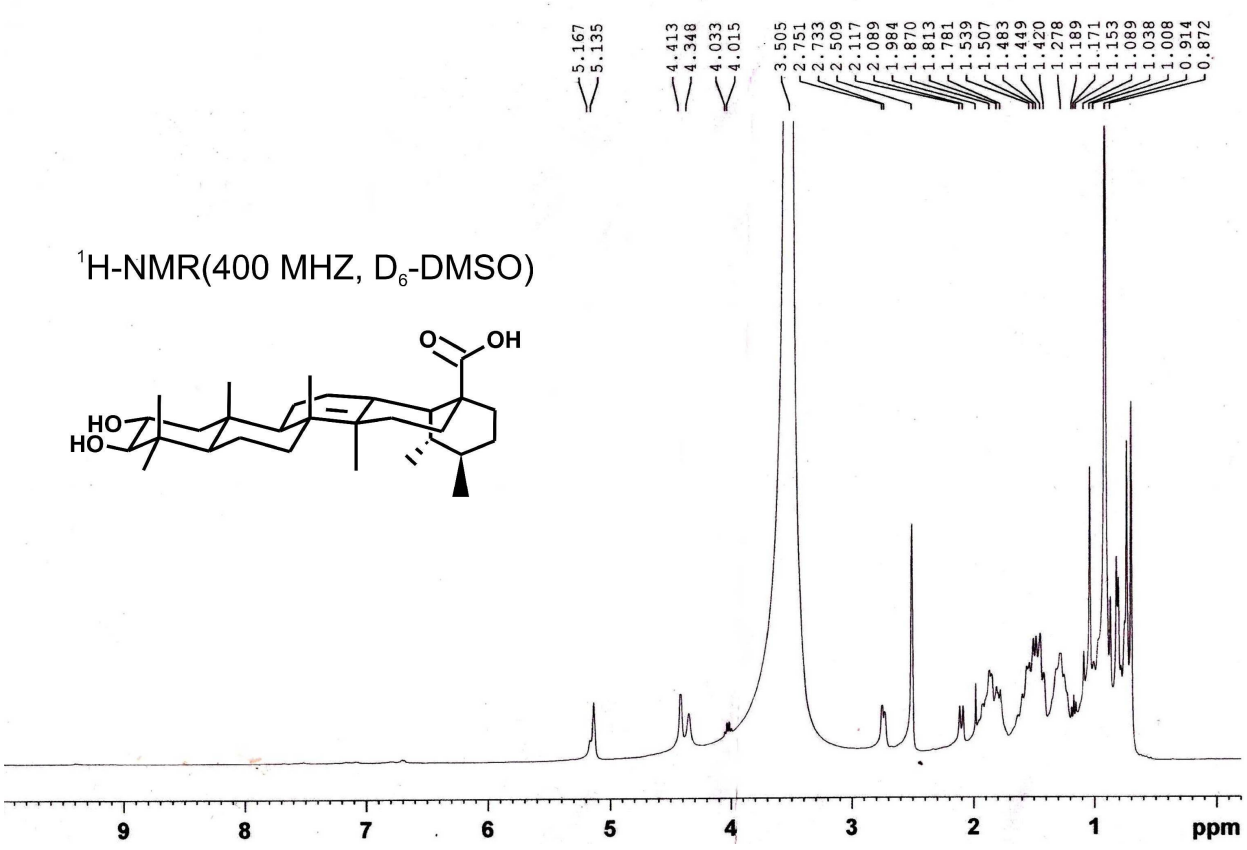


Fig S10: Fluorescence emission spectra free-Rho-B, encapsulated Rho-B into vesicular assemblies of corosolic acid and after sonication of the mixture.

10. ^{1}H-NMR spectrum of corosolic acid



11. ^{13}C-NMR spectrum of corosolic acid