Supplemental Information for manuscript:

Self-assembly mechanisms of the silk protein sericin on two-dimensional surfaces

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Gel electrophoresis:

Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) was used to determine species molecular weight. Along with 10 µL of SeeBlue protein standard, 10 µL mixtures of 5 µg of sericin, mixed with 5 µL 2x Novex Tricine SDS sample buffer (Invitrogen, Carlsbad, CA) were loaded into wells of a 5% stacking gel cast on top of a 8% polyacrylamide gel. The gel was run at 150 V for approximately 90 minutes and stained with MagicBlue rapid protein stain.

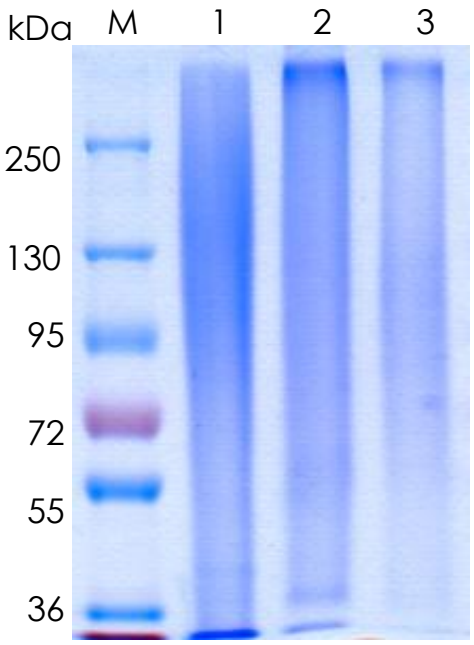

Figure S1: SDS PAGE (8%) gel pictures of 0.1% sericin solutions isolated from cocoons of different species: M- Molecular weight marker, 1- *B. mori* sericin, 2- *A. mylitta* sericin , 3- *A. assamensis* sericin.

Dynamic Light Scattering (DLS) Data:

Particle size distribution and zeta potentials for the sericin samples were obtained using a Malvern Zetasizer Nano ZS90 (Malvern Instruments Ltd., Worcestershire, UK), at 20.0°C over 100 scans.

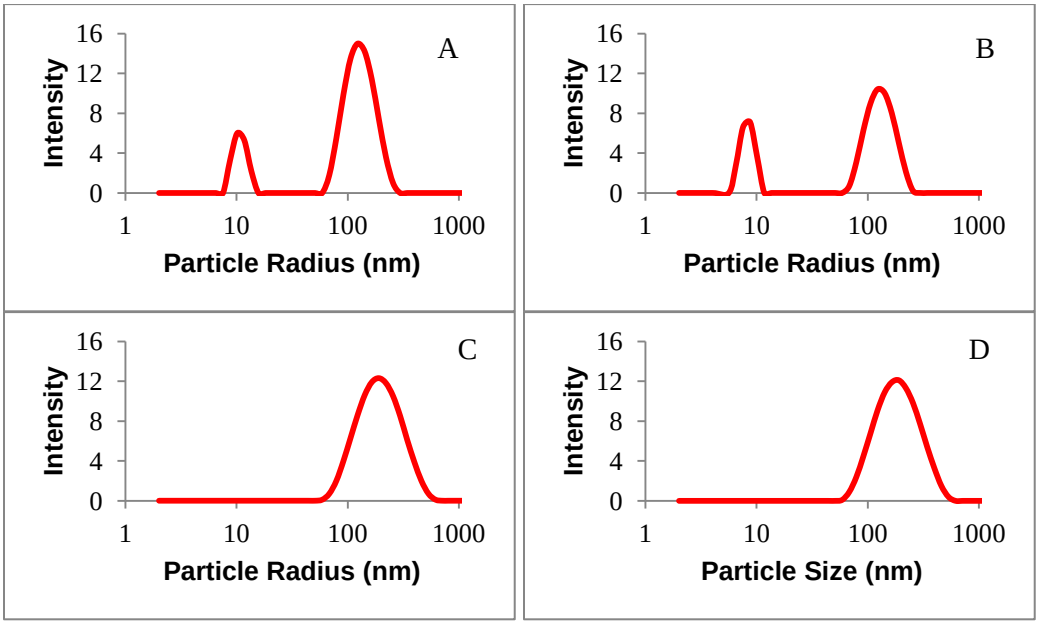

Figure S2: Particle size data for sericin from the different species as determined by DLS. (A) *B. mori*. (B) Wako sericin (*B. mori* commercial source). (C) *A. mylitta*. (D) *A. assamensis*.

High resolution images of self-assembly of *B. mori:*

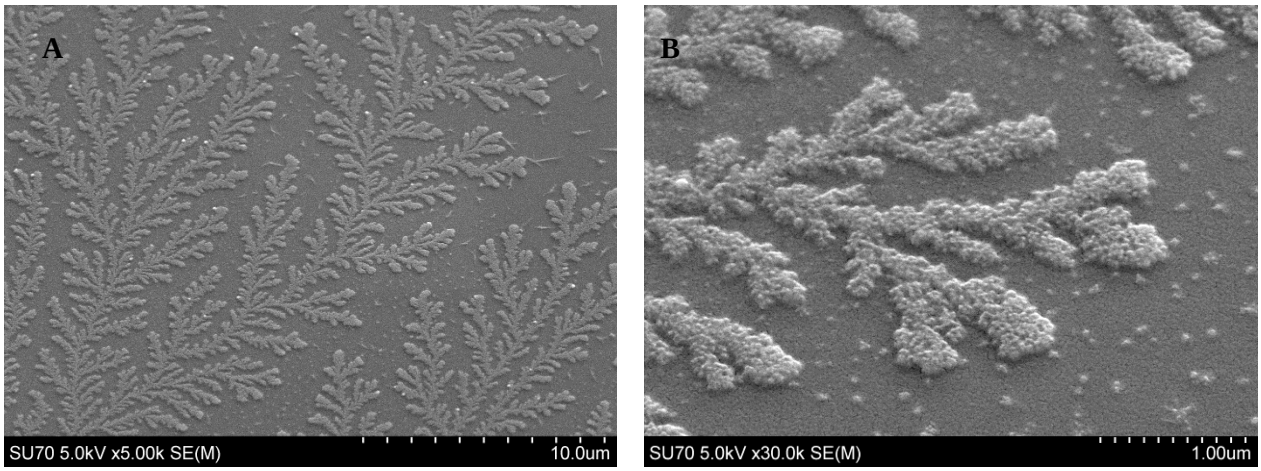

Figure S3: (A) Low- and (B) high-magnification SEM images of *B. mori* DLA architecture.

High resolution images of self-assembly of *Anthereae mylitta:*

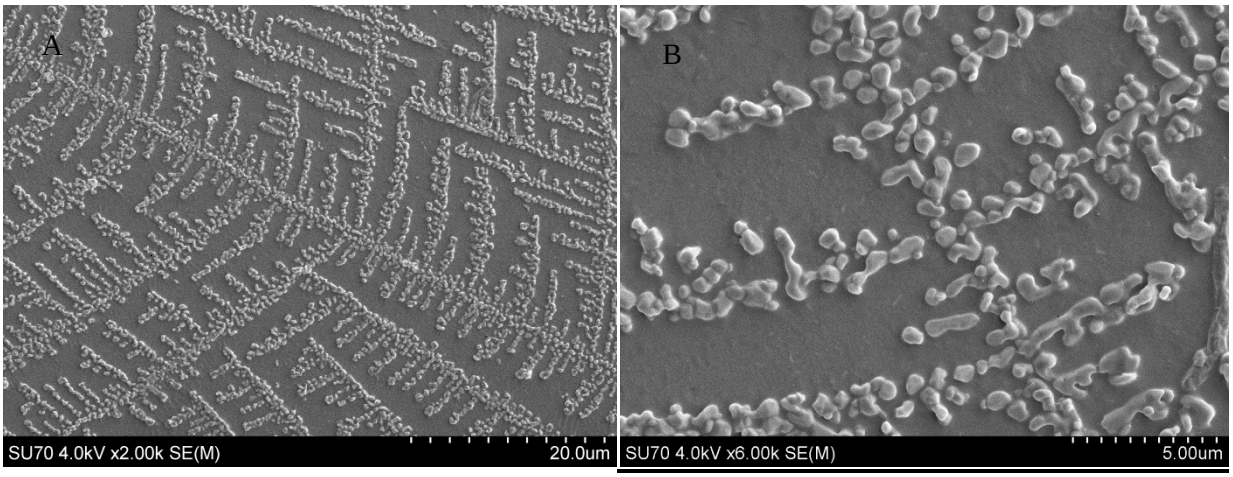

Figure S4: (A) Low- and (B) high-magnification SEM images of *A. mylitta* DLA architecture.

High resolution images of self-assembly of *A. assamensis:*

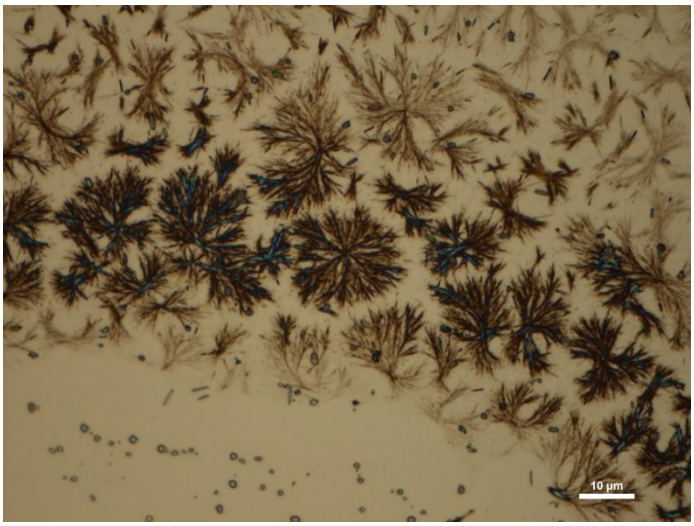

Figure S5: High-resolution optical micrograph of *A. assamensis*, showing single aggregates.

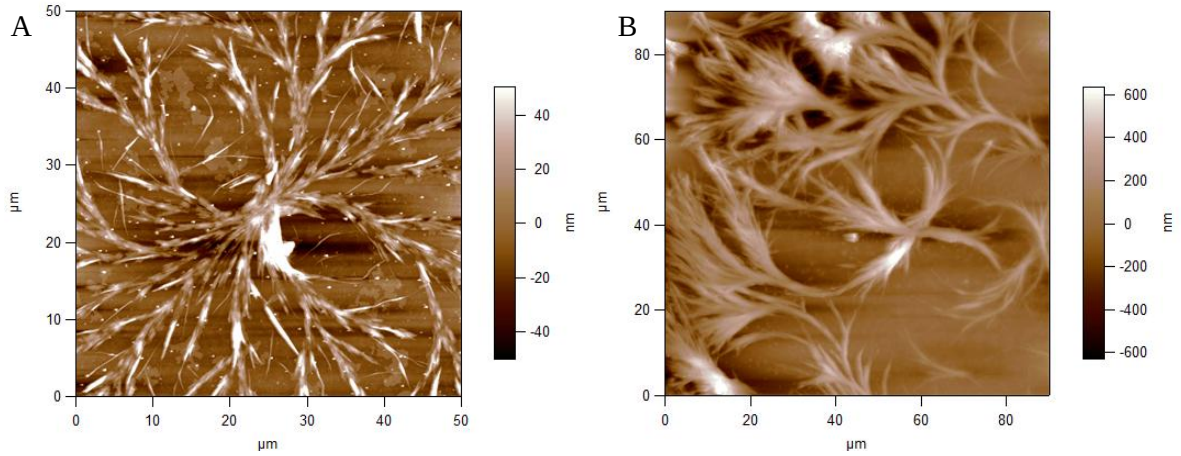

Figure S6: AFM images of (A) radially-branched features observed in Figure S5, and (B) aggregates observed at the contact line of the solvent-Si interface.

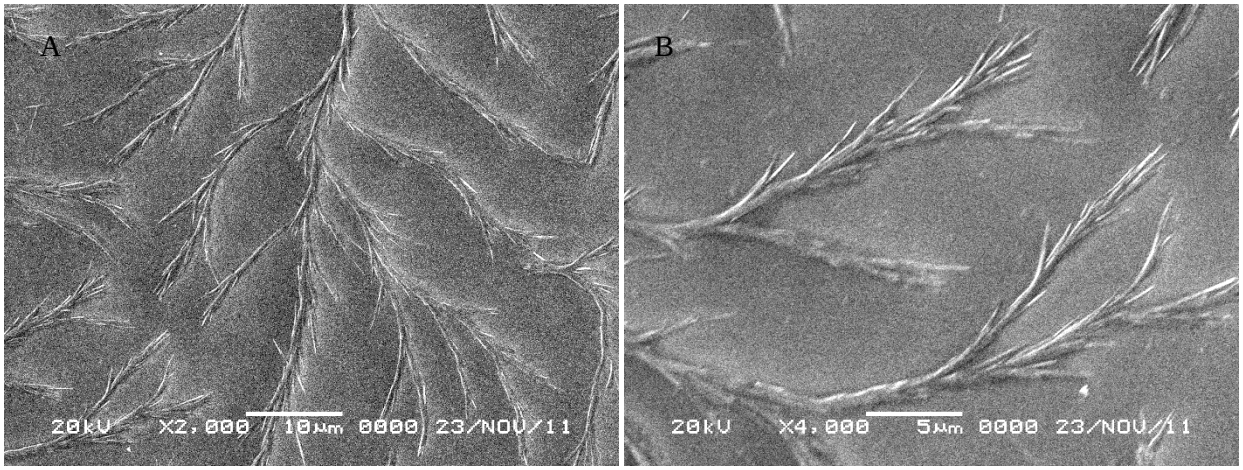

Figure S7: (A) Low- and (B) high-magnification SEM of *A. assamensis*, with nanorods visible at branch tips in (B).

Figure S8: Circular Dichroism (CD) to estimate secondary structure of the protein samples investigated.(A) Bombyx Mori (B)

Sericin Sample	α Helix (%)	β Sheet (%)	β Turn (%)	Random Coil (%)
B. mori	**2.3**	**43.6**	**22.3**	**32.4**
Wako sericin	**0**	**48.1**	**23.6**	**31.2**
A. mylitta	**1.9**	**48.8**	**23.9**	**29.3**
A. assamensis	**1.7**	**44.7**	**22.3**	**33.3**

Table S1: Tabulated results from DichroWeb's SELCON3 secondary structure analysis at 178-260 nm.