Deep Eutectic Solvent in Water Pickering Emulsions Stabilised by Cellulose Nanofibrils – Supplementary Information

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Results and Discussion

Visual Observation

Figure S1. Emulsions stabilised with either OCNF (left) or C8-OCNF (right), demonstrating creaming of the C8-OCNF stabilised emulsion
Rheology

Figure S2. Flow sweep curves of 1.5 wt% OCNF or C8-OCNF in water
**Droplet Size**

As shown in Figure S3, the emulsions stabilised by starch had a much greater increase in droplet size compared to those stabilised by OCNF or C8-OCNF (the data for OCNF and C8-OCNF are duplicated here from the main manuscript for comparison). This coincided with visible instability and syneresis of the starch emulsion which did not occur in the other two.

![Figure S3](image)

Figure S3. Droplet size of menthol:dodecanoic acid in water emulsions stabilised by either starch, OCNF, or C8-OCNF.

Emulsions stabilised with surfactant (either AOT or Tween20) had much smaller droplet sizes than those stabilised with polysaccharides.

![Figure S4](image)

Figure S4. Droplet size of a menthol:dodecanoic acid in water emulsions stabilised with either Tween20 or AOT.
**SAXS**

Fitting parameters for the fits shown in Figure 3 are given in Table S1. In all cases an elliptical cylinder model was used.

Table S1. Fitting parameters for OCNF and C8-OCNF in water and as part of an emulsion

<table>
<thead>
<tr>
<th>Sample</th>
<th>Minor Radius (Å)</th>
<th>Major Radius (Å)</th>
<th>Length (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 wt% OCNF in H₂O</td>
<td>12.5±2</td>
<td>59±9</td>
<td>&gt;1000</td>
</tr>
<tr>
<td>DES in Water, OCNF stabilised</td>
<td>13.4±2</td>
<td>66±10</td>
<td>&gt;1000</td>
</tr>
<tr>
<td>1.5 wt% C8-OCNF in H₂O</td>
<td>13.5±2</td>
<td>64±9</td>
<td>305±20</td>
</tr>
<tr>
<td>DES in Water, C8-OCNF stabilised</td>
<td>15.5±2</td>
<td>70±9</td>
<td>266±20</td>
</tr>
</tbody>
</table>

Figure S5. Explanation for apparent shortened length of C8-OCNF (right) compared to OCNF (left) as a result of fibril floculation.