Denaturation and preservation of globular proteins: 

the role of DMSO

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Supporting information

**Figure S1.** Amide I region of FTIR spectra for diluted (50 mg/ml) HEWL solutions at three different DMSO molar fractions. The blue shift of band profile on increasing temperature between 25 and 90°C is evidenced by the black arrow.
Figure S2. Complete set of melting curves of diluted HEWL solutions at different DMSO molar fractions. Experimental points are shown together with fitting curves obtained by applying equation (1) (see text).
Figure S3. Increase of intensity at 1618 cm\(^{-1}\) (aggregate signal \(\nu_{agg}\)) for the solution at [HEWL]=120 mg/ml, \(x_{DMSO}\)= 0.30 and fixed temperature in the range 43°C<T<70 °C. Curves at T=43-45°C shows a continuous raise of intensity for \(\nu_{agg}\) even at longer reaction times.
Figure S4. Intensity of aggregate signal $\nu_{agg}$ in the high temperature regime. The decrease of intensity for this absorption is due to the dissociation of supramolecular species; regardless of protein concentration or solvent composition this reduction is observed at $T \geq 64°C$. 

- [HEWL] = 86 mg/ml at $x_{DMSO} = 0.30$
- [HEWL] = 120 mg/ml at $x_{DMSO} = 0.30$
- [HEWL] = 120 mg/ml at $x_{EtOD} = 0.18$
Table S1 Melting and aggregation temperatures for HEWL in DMSO/water solution at $x_{\text{DMSO}} = 0.30$ and different protein concentrations.

<table>
<thead>
<tr>
<th>HEWL concentration / mg ml$^{-1}$</th>
<th>$T_m$ / °C</th>
<th>$T_{\text{agg}}$ / °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>86</td>
<td>51.1 ±0.9</td>
<td>57.8 ±0.3</td>
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<tr>
<td>120</td>
<td>51.1 ±0.5</td>
<td>53.3 ±0.7</td>
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<tr>
<td>150</td>
<td>51.1 ±0.3</td>
<td>51.5 ±0.2</td>
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</tbody>
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