

**Table S1.** Gluten secondary structure (FTIR spectroscopy) expressed in area (%) as a function of temperature, ascorbic acid (AA), diacetyl tartaric acid ester of monoglycerides (DATEM) and dithiothreitol (DTT)<sup>a</sup>.

Temperature	Additive	Area (%)				
		Intermolecular $\beta$ -sheets/ extended hydrated chains	Antiparallel $\beta$ - sheets, more weakly hydrogen-bonded $\beta$ -sheets	Random coils and $\alpha$ -helices	$\beta$ -turns	$\beta$ -sheets
25 °C	Control	26.4 <sup>f</sup>	24.3 <sup>d</sup>	23.5 <sup>e</sup>	5.6 <sup>b</sup>	8.7 <sup>c</sup>
	AA	29.5 <sup>a</sup>	24.3 <sup>d</sup>	22.3 <sup>g</sup>	5.3 <sup>b</sup>	7.3 <sup>g</sup>
	DATEM	25.5 <sup>h</sup>	25.0 <sup>b</sup>	25.7 <sup>ab</sup>	7.5 <sup>a</sup>	6.5 <sup>i</sup>
	DTT	27.1 <sup>e</sup>	25.6 <sup>a</sup>	22.9 <sup>f</sup>	5.6 <sup>b</sup>	7.8 <sup>e</sup>
45 °C	AA	28.9 <sup>b</sup>	24.2 <sup>d</sup>	24.0 <sup>cd</sup>	4.6 <sup>c</sup>	7.6 <sup>f</sup>
	DATEM	26.5 <sup>f</sup>	24.3 <sup>d</sup>	23.8 <sup>de</sup>	4.4 <sup>cd</sup>	9.2 <sup>b</sup>
	DTT	26.4 <sup>f</sup>	24.2 <sup>d</sup>	23.8 <sup>de</sup>	3.4 <sup>e</sup>	10.4 <sup>a</sup>
65 °C	AA	27.9 <sup>c</sup>	23.8 <sup>e</sup>	25.7 <sup>a</sup>	3.1 <sup>e</sup>	8.2 <sup>d</sup>
	DATEM	26.3 <sup>g</sup>	24.9 <sup>c</sup>	25.2 <sup>b</sup>	4.1 <sup>d</sup>	8.3 <sup>d</sup>
	DTT	27.5 <sup>d</sup>	23.8 <sup>e</sup>	24.5 <sup>c</sup>	4.8 <sup>c</sup>	7.1 <sup>h</sup>

<sup>a</sup> Mean values (n = 3) within the same column followed by the same superscript letter are not significantly different (Tukey's test  $P < 0.05$ ). Treatments: 100 ppm AA, 0.6% DATEM and 25 mM DTT.