Whey Protein Concentrate Method

Scope

- Assess gelling ability of whey protein concentrate powder (WPC).
- Quality control of WPC manufacturing process.

Rapid Visco Analyser

The Rapid Visco Analyser (RVA) is a cooking stirring viscometer with ramped temperature and variable shear profiles optimized for testing viscous properties. The instrument includes international standard methods as well as full flexibility for customer tailor-made profiles. Combining speed, precision, flexibility and automation, the RVA is a unique tool for product development, quality and process control and quality assurance.

Description

WPC is used in the manufacture of various foods for their desirable functional and nutritional properties. The processing conditions used to produce WPC, seasonal effects and other factors can influence the functional properties of these concentrates. The gelling abilities of WPC powders can be assessed using a defined regime of heating, cooling and shear in the RVA.

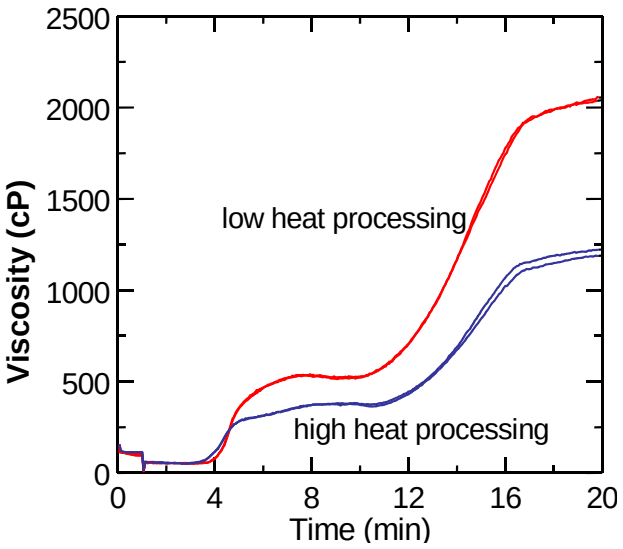

Fig. 1. Effect of processing temperature on RVA gelling curves of whey protein concentrate. The sample that was processed at a higher temperature had a lower viscosity during the test from the commencement of heating.

Method
Twenty-minute pasting profile.

Sample Preparation
X g sample (to give protein content of 4.50 g) and Y g of BTP pH 6.5 Buffer to make total weight of 28.5 g. Cover with rubber stopper and shake vigorously to disperse.

Preparation of BTP (Bis-Tris-Propane) pH 6.5 Buffer
10 mM BTP (Sigma), adjust to pH 6.5 using 1 M sodium hydroxide/lactic acid.

Profile

Time	Type	Value
00:00:00	Temp	50°C
00:00:00	Speed	1000 rpm
00:01:00	Speed	320 rpm
00:01:00	Temp	50°C
00:04:30	Temp	80°C
00:09:30	Temp	80°C
00:15:00	Temp	30°C
00:20:00	End	
Idle Temperature: 50 ± 1°C Time Between Readings: 4 s		

Measure
PV: Peak viscosity (cP)
PT: Peak temperature (°C)
FV: Final viscosity (cP)
TV: Trough viscosity (cP)
TT: Trough temperature (°C)

The FV is the RVA Whey Protein Concentrate Index.