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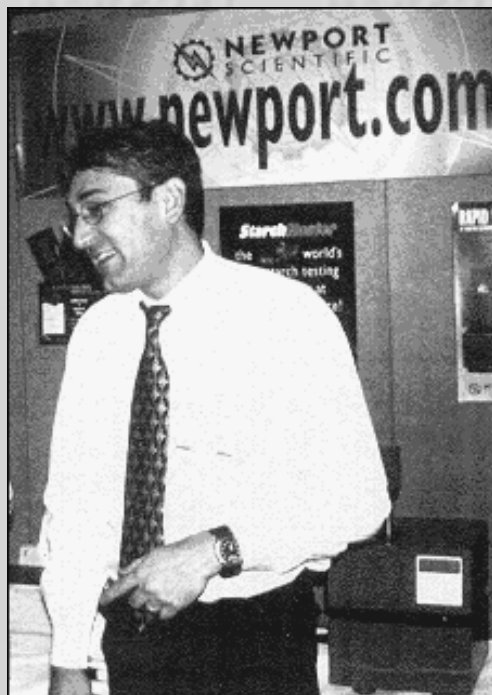
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StarchMaster Launch in Australia

Melbourne was the venue for this year's 49th Royal Australian Chemical Institute Cereal Chemistry Division Conference which was held from 12 to 16 September in conjunction with the 9th Australian Barley Technical Symposium. The meeting was chosen for the official Australian launch of StarchMaster, Newport Scientific Pty Ltd's new, economical, easy-to-use, stand-alone RVA. Demonstrations were run on Newport's trade display stand and the instrument formed the focus of the annual RVA Users' Group Meeting held in conjunction with the conference.

Above: Ivan Zlatin at the Newport Scientific Stand, RACI, Melbourne.

Middle: Control Química, Argentina 1999, from left: Pablo Patapovas, Pablo Bruzzi, Bronwyn Elliott, Maria Paz, Nélide Perrier.

Right: Stephen Pike at the Nordic Rheology Conference.

In October the StarchMaster had another opportunity to star - this time in Sydney, on the Newport Scientific trade stand at the 10th World Congress of Food Science and Technology which was held for the first time in the southern hemisphere.

First-ever RVA Seminar in Argentina

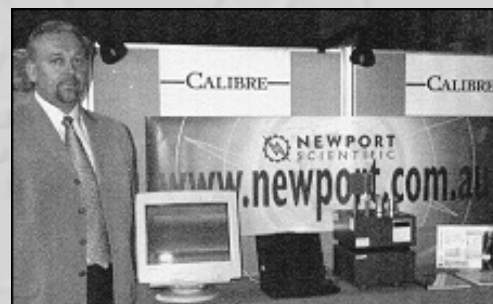
Control Química S.A., representante exclusivo del grupo FOSS, Grabner Instruments, Pharma Test y PBI y ahora también flamante representante de Newport Scientific en la Argentina, tuvo el agrado de realizar en el mes de agosto el primer seminario sobre RVA en Buenos Aires. El mismo incluyó aplicaciones del instrumento en análisis de almidón y trigo, abarcando el daño por brotado, características de pastificación del almidón y calidad del gluten de trigo. La concurrencia, constituida principalmente por fabricantes de almidón modificado, representantes de molinos harineros, investigadores de organismos privados y oficiales y compañías fabricantes de pastas, mostró un gran interés en el instrumento y sus diversas aplicaciones. Dicho seminario fue dictado por Bronwyn Elliott, Product Manager de Newport Scientific, y la demostración del instrumento estuvo a cargo de Pablo Patapovas de Control Química.



Control Química S.A., exclusive representative of FOSS, Grabner Instruments, Pharma Test and PBI and now new representative of Newport Scientific in Argentina, was delighted to present the first RVA seminar in Buenos Aires in August. Papers focused on the instrument applications to starch testing and wheat testing including weather damage, starch pasting characteristics and gluten quality. The attendees, mainly modified starch manufacturers, flour millers, researchers from public and private organisations and from pasta manufacturing companies, showed great interest in both the RVA-4 demonstration and its applications. The seminar was presented by Bronwyn Elliott, Product Manager of Newport Scientific, with instrument demonstration by Pablo Patapovas of Control Química.

Nordic Rheology Conference

Stephen Pike of Calibre Control International Limited took the RVA to the trade display at the Nordic Rheology Conference held in the Technical University of Denmark at Lingby near Copenhagen in June.



In this issue

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- ⚡ Meet the people

Effects of alpha-amylase on Flour Paste Viscosity Measurements and Relationships with Alkaline Noodle Texture

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Introduction

Various degrees of association between Rapid Visco Analyser (RVA) parameters of flour and wholemeal and the textural characteristics of noodles have been established in previous studies. In a number of these studies, it was assumed that if alpha-amylase levels in the flour were low then the enzyme should have minimal effect on the paste viscosity measurements. Similar assumptions have been made in other studies seeking to establish starch characteristics of wheat genotypes by means of flour or wholemeal paste viscosity measurements.

In this study, the effects of low levels of alpha-amylase on individual paste viscosity parameters of flour were considered. Also considered were relationships between flour paste viscosity and alkaline noodle textural characteristics.

Materials and Methods

Sound grain of cultivars Eradu (high-swelling starch) and Kulin (low-swelling) were germinated and ground to wholemeal. Blends of the sound and germinated wholemeal were

prepared to give samples covering a wide range of Falling Number.

These samples were subjected to RVA tests using water and 1.0 mM AgNO₃.

Alkaline noodles were prepared from 40% extraction flours that were milled from samples of 20 wheat cultivars. A commercial Japanese ramen flour was also included. The wheat samples ranged in Falling Number from 408 to 706 seconds. The noodles were assessed using established Japanese methods with the commercial ramen sample as the control. RVA tests were also carried out on the flours using water and 1.0 mM AgNO₃.

Results and Discussion

Figures 1 A and 1 C show that low levels of alpha-amylase in the wholemeal blends, equivalent to Falling Number values above 300 seconds, had substantial effects on RVA measurements - these were more pronounced on RVA peak viscosity than on RVA breakdown. The effects were largely eliminated by the inactivation of the enzyme using 1.0 mM AGNO₃,

(Figures 1B and 1D). Figure 2 shows a significant negative correlation between total texture score of alkaline noodles and RVA peak viscosity when the tests were carried out in 1.0 mM AgNO₃. This relationship was not apparent when the tests were carried out in water (Figure 3).

Details of this study are described more fully in Crosbie et al. 1999, *Cereal Chem.* 76 (3): 328-334.

Conclusions

This study indicates the importance of alpha-amylase inactivation in RVA tests on flour or wholemeal samples when the main purpose is to measure the inherent starch pasting properties or potential noodle quality of the samples.

Acknowledgement

This work was first presented at the 49th Royal Australian Chemical Institute (RACI) Cereal Chemistry Division Conference in conjunction with the 9th Australian Barley Technical Symposium, Melbourne, Australia, 12-16 September 1999.



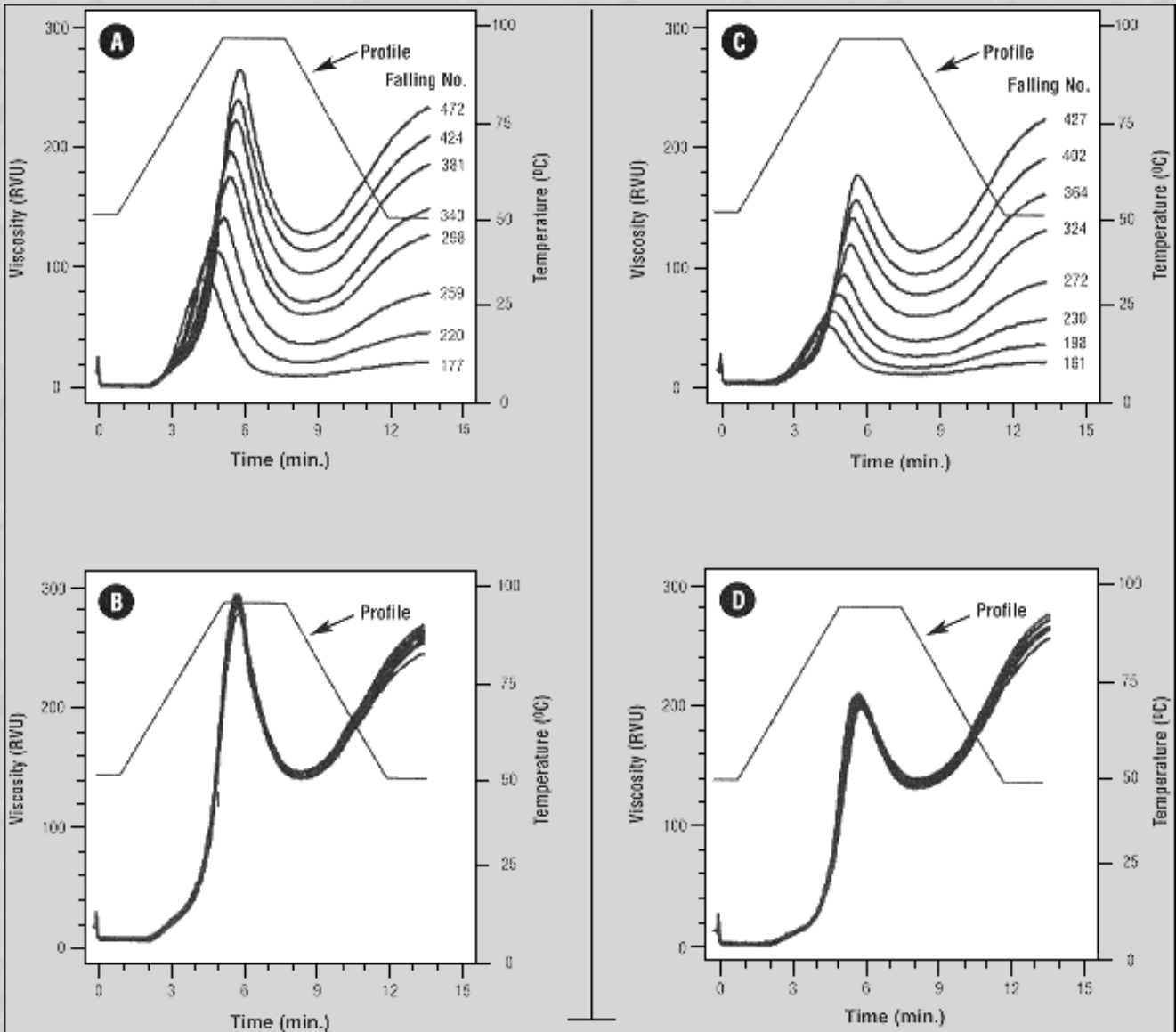


Figure 1.

RVA paste viscosity measurements tests on wholemeal blends of sound and sprouted grain of Eradu tested in water (A) and 1.0 mM AgNO₃ (B); Kulin tested in water (C) and 1.0 mM AgNO₃ (D).

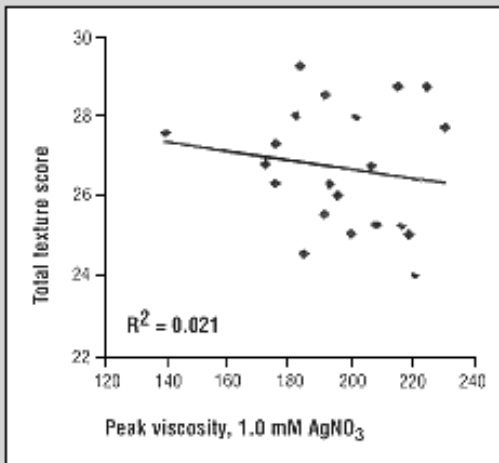


Figure 2. Relationship between total texture score and peak viscosity assessed in 1.0 mM AgNO₃.

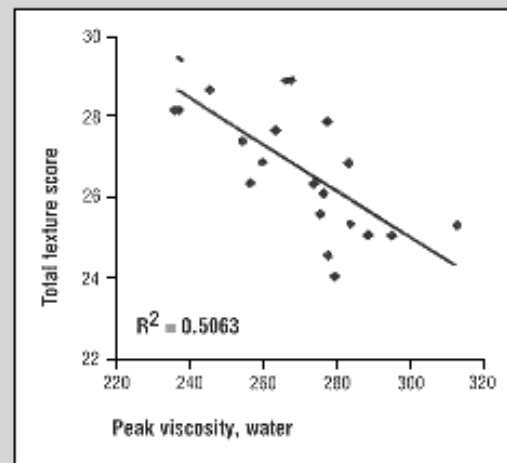


Figure 3. Relationship between total texture score and peak viscosity assessed in water.

ICC Valencia

The 17th ICC Conference, held in the beautiful seaside city of Valencia in June, was once again an excellent forum for exchange of the latest ideas and the developments in the cereals industry. Taking advantage of the regionally important rice industry and historical links to South America, the program held wide appeal and attracted a good attendance. The ICC plays a very important role in the coordination and dissemination of cereal-based information and standards in the European region and beyond. The RVA was again on display and applications for assessing wheat protein qualities were presented in the corporate member session.

**Meet the People:
Jarrah Gard**



Jarrah began working at Newport Scientific in 1995, and since completing courses in Office Administration, Web Page Design and Computer Networks has advanced to the position of IT Manager. As well as essential office administration tasks, international shipping and invoicing, he has created and maintains our website so RVA users can be kept up to date with the latest Newport Scientific news. Most recently, Jarrah has implemented our in-house computer network, advancing our ongoing commitment to improving customer service into the new millennium.

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Application: Rice Grading

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Rice imported/exported into the EU carries a declaration indicating whether it is milled, parboiled or precooked, along with the usual grading factors based largely on physical attributes. In some rices, better quality in cooking and storage can be achieved by parboiling. 1mpoded rice may also be precooked to produce rapid-cook convenience foods. Declaration of these treatments affects trading value so methods of verification are required. Traditional visual grading techniques are not reliable for this purpose.

A simple and rapid method has been developed using RVA to verify processing effects in rice. Following AACC Method 61-02, 3.00 g ground rice (12% moisture basis, 0.5 mm mill sieve) is mixed with 25.0 mL water and tested using the profile shown in Table 1. Treatment types are readily distinguished as seen in the typical traces shown in Figure 1. Results can be quantified as the rate of increase in viscosity during gelation by the analysis formula $\text{ViscAtPeak} (3,6) / (\text{TimeAtViscPeak} (3,6) - \text{TimeAtViscRate} (2,7, .20,7))$ applied in the TCW software.

The method is useful for verifying declared processing treatments in rice.

Time	Type	Value
00:00:00	Temp.	50°C
00:00:00	Speed	960 rpm
00:00:10	Speed	160 rpm
00:01:00	Temp.	50°C
00:04:48	Temp.	95°C
00:07:18	Temp.	95°C
00:11:06	Temp.	50°C
00:12:30	Temp.	50°C (End)

Table1.
Testing profile for rice.

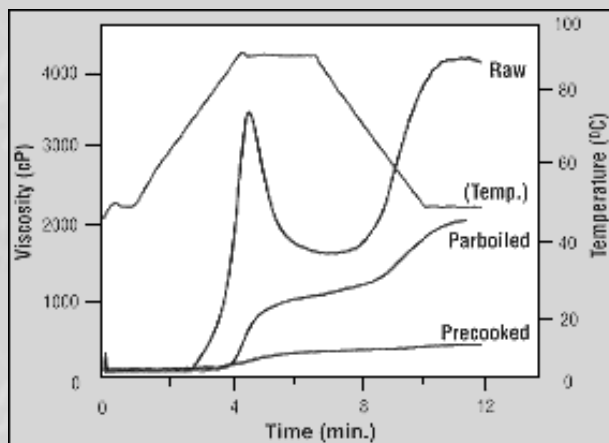


Figure 1.
RVA pasting curves of raw, parboiled and precooked rices.



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