
Measurement of maple syrup quality

Introduction

An important factor in maple syrup classification is colour designation. As colour is an important characteristic used by producers, packers and end-users alike, its measurement is vital in quality control processes. Indeed, it is estimated that 75% of industrial users include colour specifications in their designations; typical uses are as colouring and browning agents in various food products.

Measurement of quality and purity

Colour

Maple syrup is classified by measurement of transmittance at 560nm using AR grade glycerol as a reference:

Colour name (maple syrup)	%T at 560nm
Grade A Light Amber	> 75%
Grade A Medium Amber	74.9 - 60.5%
Grade A Dark Amber	60.4 - 44.0%
Grade A Extra Dark Amber	43.9% - 27.0%
Commercial Grade	< 27.0%

Methods

The maple syrup used was a commercial sample of Quebec origin purchased in the local supermarket. The Libra S5 is visible only instrument with a wavelength range from 330 - 830 nm that may be used for simple measurements at 560nm. It also has a heated cell holder that regulates at 37 C, making it ideal for kinetics reactions such as the determination of diastase activity.



Results

Colour

The transmittance readings for maple syrup solutions used were as follows:

Sample	%T at 560nm	Classification
Maple syrup	89.5	Grade A Light Amber

Note that the use of spectral measurements for colour is more precise than a single wavelength as it completely avoids dependence on a group of wavelengths which could be distorted by adulteration and omission of relevant data. Scans are readily obtained on the Libra S5. Approximations to peak area calculations after output of a complete scan to spreadsheet would enable customising the data further.

Discussion and Conclusions

These results demonstrate the versatility of the compact instrument Libra S5 and show how it will continue the invaluable role of its predecessors for quality control in the food and drink industries. A considerable amount of data may be collected and archived from a range of samples, requiring only fairly simple preparative methods. A further advantage of the unit is the small size and convenient portable design which enables it to be used near the process, for example to check colour after filtration.

Ordering Details

Libra S5 with thermostatted cell holder 80-2115-01