$$\Delta T(x,t) = 2\frac{q\sqrt{at}}{\lambda}ierf\left(\frac{x}{2\sqrt{at}}\right) \tag{3}$$

Where $a$ is thermal diffusivity, $\lambda$ is thermal conductivity of the sample and *ierfc* is the error function [3].

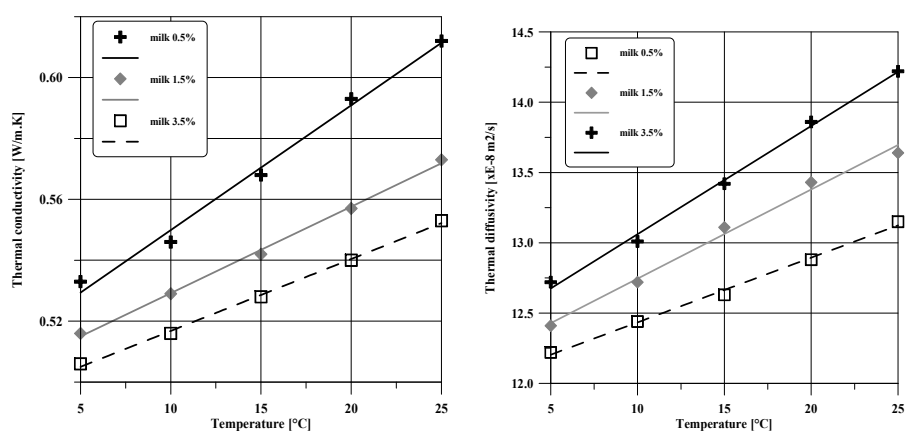$$T(0,t) = \frac{q\sqrt{a}}{\lambda\sqrt{\pi}}\sqrt{t} \tag{4}$$



Figure 2-3
Relations of thermal conductivity and thermal diffusivity
to temperature for milk with different relative fat content

## INSTRUMENTAL MEASURING OF COLOUR AS A MARKER OF ORIGIN OF SOME VARIETIES OF POTATOES

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ABSTRACT

In this work are described results of first year of research of spectrofotometric measuring of colour. We observed an improvement of instrumental measuring of colour as a marker of origin of some varieties of potatoes.

We tested ten varieties of potatoes. The potatoes were tested raw and boiled. Three raw potato tubers were parted in two pieces in transverse and lengthwise direction. Every half was measured in three repetition. In the same way were prepared other three raw and three boiled potatoes which were measured over the PE sheeting.

The optical system is using diffused illustration and reflected light is measured under coal 8°(d/8) with SCE function (specular component excluded) for elimination of mirror radiance. Slot diameter is 30 nm.

All spectrum between 380-780 nm was measured. The colour is defined in L*a*b* colour system (CIELab).

The first record shows that it is possible to diagnose the varieties of potatoes only by spectrophotometical measuring of colour. Just now we are trying to confirm this in other tests in In-house grant of Mendel University.

INTRODUCTION

There is lot of causes why to check quality of food. In cause of potatoes is point to check mainly its varieties. Quickness, simplicity, low costs and scarcely any other special requirements to serve person – this is a few basic conditions to implant new method to practice.

Our Method - spektrofotomectric measuring of colour fulfil all this condition. The difference between spectrophotometric and colourimetric measuring of colour is that the spectrophotometric measuring defined the colour of the object like the human eye seems it. Spectrophotometric measuring does it too, but in addition it measures all spectrum between 380-780 nm and the colour is defined in L*a*b* colour system (CIELab). So we can find unique part of spectrum if it exists and describe for example origin of some varieties of potatoes.

MATERIALS AND METHOD

Ten varieties of potatoes were tested (Aneta, Rosara, Korela, Lolita, Jitka, Ditta, Red Anne, Katka, Karin a Keřkovské rohlíčky).

Preparation of samples:

The potatoes were tested raw and boiled. Three raw potato tubers were parted in two pieces in transverse and lengthwise direction. Every half was measured in

three repetition. In the same way were prepared other three raw and three boiled potatoes which were measured over the PE sheeting.

Boiled samples were boiled 15 minutes.

The optical system is using diffused illustration and reflected light is measured under coal 8 (d/8) with SCE function (specular component excluded) for elimination of mirror radiance.

Slot diameter is 30 mm.

All spectrum between 380-780 nm was measured. The curve of measured spectrum of one sample is on Fig. 1.
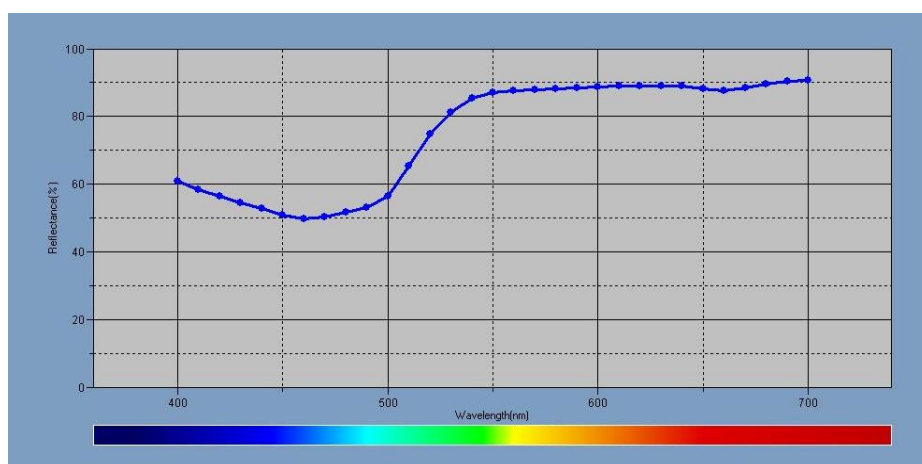


Figure 1
The curve of spectrum between 380 -780 nm

The colour is defined in L*a*b* colour system (CIELab). (Fig. 2) In this system value L* is luminance and values a* and b* are axis of colour. + a* is red direction, -a* is green direction, + b* is yellow direction and -b* is blue direction.

RESULTS AND DISCUSSION

It was used ten varieties of potatoes. From every variety was choose 12 samples. Six Samples were boiled, other six we used raw. Three samples from each groups we cut in cross direction and other three in longitudinal. Each half of sample was measured three times. So we got 72 measurement from each variety of potatoes.

For statistic characterising we use Tukey-B test. It shows that origin of variety of potatoes can be defined for P<0,05 on base of measurement of a* dates (red colour area).

This dates can not be use like conclusive. We have to confirm our first results in few harvest and take into account other factors like different growing plans, area, weather, stocking etc.
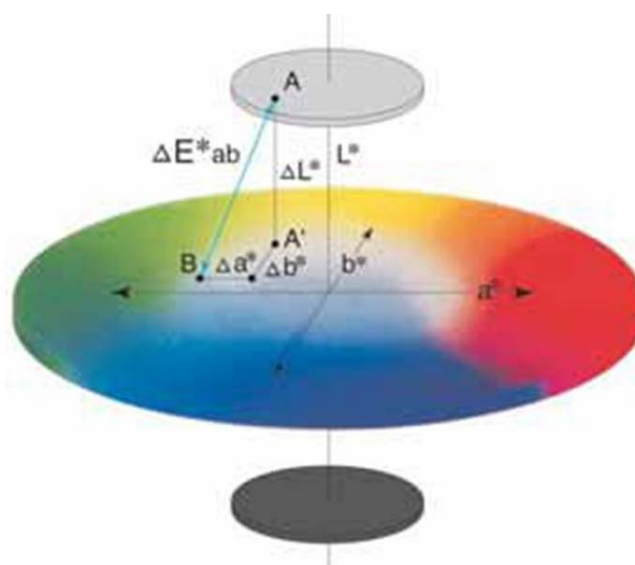


Figure 2
L*a*b* colour system

## ACOUSTICS METHOD OF THE
## CHEESE RIPENING EVALUATION

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