

EFFECT OF AMYLOSE AND DIETARY FIBRES VARIABILITY ON WHEAT FLOUR TECHNOLOGICAL QUALITY AND HEALTH BENEFITS OF BAKERY PRODUCTS

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01. INTRODUCTION

Starch consists of amylose and amylopectin molecules whose ratio affects the starch functional and physicochemical properties, the processing parameters of flour, digestibility and the edible quality of the end-use food products. Generally, wheat starches contain 22–26% amylose and 74–78% amylopectin. Also starch structure and technological functionality can impact human gastrointestinal physiology. Nonetheless, wheat dietary fibre increases the nutritional value of bread but usually at the same time alters rheological properties of dough and, finally, the quality and sensorial properties of bread.

02. MATERIALS & METHODS

- Twenty two genotypes of bread wheat (*Triticum aestivum* L.) with different amylose content, origin, pedigrees and a growth type recently developed at the Maize Research Institute Zemun Polje (MRIZP), northern Serbia, were used in the study. Standard cropping practices were applied to provide adequate nutrition and to keep the disease- and weed-free plots.
- The standard chemical methods were applied to determine moisture, content of total proteins, fats, cellulose and ash (AOAC, 1990; AACC, 2000). Results were expressed as % of d.m.
- The amylose and amylopectin content were determined according to McGrance et al. (1998).
- To obtain the pasting curve of wheat flour, changes in apparent viscosity of an aqueous suspension were determined using Brabender Viscograph (Method ICC 1992)

03. RESULTS

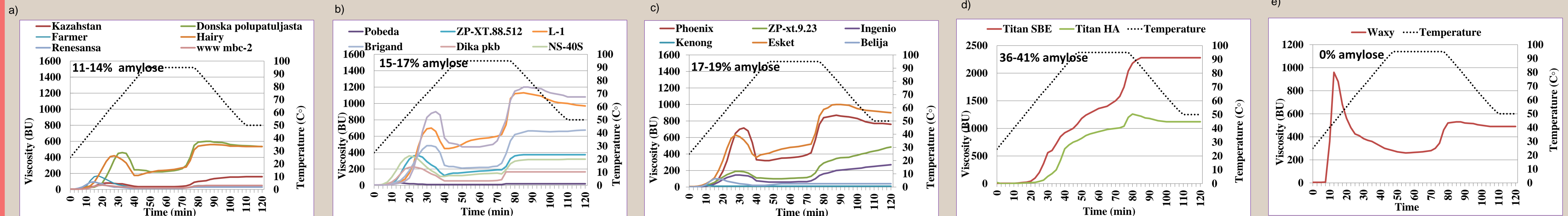


Figure 1. Pasting profiles (viscosity curves) of the investigated wheat flours according to the amylose content: a) amylose range 11-14%; b) amylose range 15-17%; c) amylose range 18-19%; d) amylose range 36.5-41%; e) amylose 0% (waxy).

04. CONCLUSIONS

- Starch content was found maximum in genotype Belija (71.64%) followed by Phoenix (71.43%), NS-40s (70.51%) and Farmer (70.09%), while minimum was found in wheat genotype Titan SBE (64.10%).
- High value of amylose-amylopectin ratio indicates low glycemic index and the highest was found in genotype Titan SBE (0.57).
- The viscosity of waxy wheat flours were different compared to conventional wheat flours, since higher amylopectin content can cause lower initial pasting temperature, peak temperature and higher peak viscosity.
- The results of rheological properties showed a gradual reduction in peak viscosity, final viscosity and setback with increasing dietary fibre content.
- Due to the high content of hemicellulose (71.29%) the genotype Ingenio had a very low peak viscosity (145BU).

