HealthBread – attractive bread products with high nutritional value

Project background and first results
25 September 2013, Parma, Italy

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www.healthbread.eu
The wheat grain kernel and its composition

- The kernel has 3 major parts:
  - Bran
  - Germ
  - Starchy Endosperm

- Whole grain flour contains 100% of the original germ and bran

- Bran and germ have a high content of fibre, micronutrients (vitamins, minerals, trace-elements) and bioactive plant compounds (antioxidants, sterols, etc).

Dietary fibre

World-wide consensus: intake of dietary fibre is below recommended levels

Type of recommendations
- Recommended Intake for adults: 25 – 40g day
- This intake only from fibre present in fruit, vegetable and wholegrain type products
  - (Netherlands, Health Council, 2006)
- Cereal fibre are the preferred type of fibre (German Nutrition Society, 2012)

Recent scientific findings: benefits of cereal fibres over other types of fibre!

Health benefits for bran are stronger than for whole grain
Conclusions

Intake of fibre is too low in all countries

Magnesium, Zinc, Iron (for females), are included in the list of compounds where actual intake is often lower than the recommended intake
Product development aims

HealthBread: wheat based improvements (with nutrition claims)

Whole Grain + Product quality improvement (WG small breads, baguette …)

Brown Bread
~ 50% WG

Multi grain
can be white + decorations

White Bread
~ 2.5 - 3 % fibre

Whole Grain + Nutritional improvement (e.g. fibre + >30%)

Healthy & attractive bread product innovation area

Whole Grain
6-7 % fibre

White Bread + Nutritional improvement (> 6% fibre, + e.g. >30% more micronutrients)

Product “Quality” (eg. volume, softness, light colour, no bitter taste)
HealthBread: processing of base flour + wheat fraction high in fibre/micronutrients

Base Flour → Baking Process → Products

Wheat Fraction → Bioprocessing → Bioprocessed Wheat Fraction

Processing Aids
Impact of wheat fraction on bread volume/quality

Refined flour

Wholegrain

Aleurone A

Aleurone B

Wheat Bran

Whole Grain Concentrate

HealthBread – HealthBread product innovation based on FP 6 Healthgrain results and knowledge. GA number: 312165

Funded by the 7th Framework Programme of the European Union, Collaborative Project.

KBBE.2012.2.3-02 – Exploitation of Framework Programme project results in food processing by small and medium-sized enterprises.
Impact of processing on bread volume/quality

Example to show effect of different treatments: 4.1 WGCc
Benefits of fermentation and enzymes

Example: bioprocessing (~ 15h) of a wheat fraction
- Best results with fermentation with specific enzymes and process with additives

Bread quality score improved from 1.9 -> 4.6
Volume from 225 ml -> 424 ml
HealthBread 2nd year – from research to bakery practice

- Translate optimised products (WP4) with improved nutritional quality (shown in WP 3) made by dry (WP1) and wet processing (WP2) into real bakery products to be sold (WP6).

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