I. Introduction

Research on Dietary Fibres at Gembloux Agricultural University

For many years, the Department of Food Technology located at Gembloux Agricultural University (Belgium) has been involved in extracting, characterizing and valorising dietary fibres. Many by-products from agro-transformation are inexpensive, available in large quantities and also help to improve sensory properties of many foodstuffs as bread for instance. They are often undervalorized in the feed industry or for cogeneration. So, it could be possible to get a higher added-value from these products by using their nutritional potential in food formulation. Ingredients produced from these by-products could also help to improve sensory properties of many foodstuffs as bread for instance.

Formulation of dietary food with new organoleptic properties

The aim of this work is to develop food products with nutritional allegations and new tastes, textures and aspects. In collaboration with Wal.Agrı and AVEVE Group, we present the case of bread enriched by insoluble dietary fibres from a local cereal by-product source (insoluble fibres). A comparison is made with bread enriched by commercial soluble dietary fibres from lemon peels (ID Food) regarding to texture properties and consumer acceptability.

II. Ingredients characteristics

Production of ingredients: Effects on final applications

The source and process used to recover the fibres have a strong influence on their chemical and physical properties which have a direct impact on the technofunctional properties of the final formulation and the physiological effects on health.

In this case, lemon fibres are first dried before being micronized, whereas cereal husks are only micronized. Incorporation of this micronized powders bring several innovations from the point of view of organoleptic properties:

- aspect
- texture
- taste

Homogeneity (color and texture) of the crumb
No roughness in mouth
Acid for lemon fibres, rustic for cereal fibres

Technological aspects

Bigger additional water for lemon fibres because of bigger WHC.

There is no problem for making of breads with cereal fibres. Nevertheless, weight and volume of breads decrease with the amount of lemon fibres and crumb density increase.

The study of firmness (AACC 74-09) in the course of time shows a better preservation for some formulation.