

SUMMARY

RESEARCH ON THE USE OF PROTEINS FROM VEGETABLE SOURCES TO OBTAIN SPECIAL PURPOSE FOOD PRODUCTS

Ph.D-student: STAMATIE Gabriela Daniela

Scientific coordinator: Prof. Univ. Dr. ISRAEL-ROMING Florentina

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The doctoral thesis, entitled "**Research on the use of proteins from vegetable sources to obtain special purpose food products**" is structured in two parts: **Part I. Current state of knowledge** and **Part II. Own research**. The doctoral thesis begins with the **Introduction** part and ends with **the general conclusions, the elements of originality and the prospects for further research**. The work is structured in **7 chapters**, in which there are 25 tables and 63 figures and is documented by approximately 234 bibliographic references specific to the field addressed. At the end of the thesis, the scientific works published during the doctoral studies, in the theme of the thesis, are presented.

The present summary presents, in a succinct form, the content of the chapters of the work.

In **Chapter I**, a summary of the significant scientific works from the specialized literature is presented regarding the research topics addressed: generalities of proteins, the consumption trend, usage, acceptance and microbiological aspects.

The practical part represented by Chapters II-VII includes own research on the influence of some protein sources in the nutritional and sensory quality of bread-type bakery products.

In **Chapter II**, 7 types of vegetable proteins are characterized (protein ingredient from *Pleurotus*, peas, corn, soy, oats, sea buckthorn and hemp) from the point of view of instrumental sensory analyzes (color analysis and volatile compounds analysis), physico-chemical analyzes (moisture, ash, protein, lipid and carbohydrate content) and functional analyzes (water/oil absorption, foam formation and stability and protein digestibility).

In **Chapter III**, studies were carried out regarding the evaluation of the rheological behavior of mixtures of flour and ingredients of plant origin from *Pleurotus*, peas, corn, soybean, oats, sea buckthorn and hemp. Also in this chapter, the influence of ingredients of vegetable origin on the rheological parameters was studied, depending on the percentage of vegetable protein ingredient added, with the aim of obtaining nutritionally enriched bread-type bakery products.

In **Chapter IV**, experimental studies were carried out to obtain nutritionally enriched bakery products and technological optimization.

An essential component of this chapter was represented by the optimization of the technology for obtaining protein-enriched products, but also their acceptability from a sensory point of view. Thus, three technological processes for obtaining bread were approached: direct process (direct production of dough), indirect process in two phases (yeast and dough) and direct process with addition of dry yeast directly to the dough.

Chapter V includes the sensory evaluation of the obtained products, both instrumental analyzes (of color, texture and volatile odor composition) and sensory analyzes with consumers.

In order to understand the changes brought by the technological process on the microbiological quality of the products obtained, including the contribution of the longer fermentation in the indirect process as well

as of the dry yeast in the composition of the lactic bacteria and on the shelf life of the products, in **Chapter VI** the following were analyzed: the number of yeasts and molds, the number of lactic acid bacteria, water activity, pH and acidity of the bakery products obtained.

The last chapter, **Chapter VII**, contains the general conclusions, original contributions and recommendations resulting from the research carried out in this paper.