Program Synopsis

Appreciating the functional properties of food (ingredients and products) underpins all the topic areas covered in food technology. It is not only important to understand why ingredients are used in cooking recipes and how to adapt recipes, but to also understand why industrial ingredients are used in commercial products. An awareness of the effect processing has on combined ingredients and how this effect can be modified is key to food technologists. Although it is a huge topic area, this program can give an overview and clarify what this topic area encompasses. Teachers can progress or develop particular areas in more detail depending on course work options chosen. Students may even find the program useful for triggering project ideas.
Functional Properties of Food

Related Programs

- The Science in Foods
- New Food Trends - A Case Study in Product Development
- Chemistry of Cooking

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Introduction

This program is aimed at senior secondary level and explores the physical, chemical and sensory functions of many different food products. The program discusses the importance of these functions when preparing food, as well as a range of complex processes that will be of great value to any senior food student. Including Denaturation, Dextrinisation, Emulsifications, Maillard Browning and many more.

Program Rationale

We eat food to take in the range of nutrients we need for a balanced and healthy diet. Foods have a number of functional properties – including physical, chemical and sensory functions. The aim of this program is to examine the various functional properties of food during its preparation and other processes.

Background Information

This topic area covers the characteristics, structure and functional properties of foods as materials and components. It covers some of the physical and chemical aspects of foods in an applied way. A program on this topic serves as an interesting and stimulating teaching aid in food technology. As level teachers, Year 11 in particular, demand teaching resources for the delivery of this relatively new and growing course, it introduces the basic components of food yet also covers some new and modern ingredients and techniques as an update for teachers and students.

Program Timeline

00:00:00 Introduction
00:00:34 Chapter 1 – What are the functional properties of food
00:04:37 Chapter 2 – Functional properties of nutrients
00:10:06 Chapter 3 - The role of ingredients
00:15:42 Chapter 4 – Impact of preparation and processing of foods
00:19:32 Chapter 5 – Terminology and examples
00:25:53 Credits
00:26:30 End program
Program Worksheet

Before the Program

Prior to viewing this program, students should have an understanding of the following:

1. The nutrients that make up the foods that we eat (Fats, Carbohydrates, Proteins, Vitamins, Minerals and Water).
2. The functions of these nutrients and the foods associated with them.
3. The physical, sensory and functional properties of food.
**During the Program**

1. What are the three main functions of food products?

2. What are the functional properties determined by?

3. List four physical aspects of food.

4. List four textual properties of a food product.

5. What contributes to the sensory function of a food?

6. What are the seven nutrients provided by food?
7. What is denaturation?

8. What is an example of foam?

9. What is Maillard Browning?

10. What happens to starch granules when placed in heated water?

11. What is dextrinisation?

12. a) What is the emulsifying agent found in eggs?

   b) What function does it perform?

13. a) What are raising agents?

   b) How do they work?
14. Give an example of a:
   a) natural raising agent
   b) chemical raising agent
   c) mechanical raising agent

15. List five examples of additives used in commercial food products.

16. What are the three colours in foods?

17. What is the purpose of kneading bread?

18. Explain how freezing preserves food.

19. a) What is extrusion?
    b) What food products can it be used on?
20. How has technology impacted on the preservation of food items?

21. What is enzymatic browning?

22. How can enzymatic browning be prevented?
**After the Program**

1. Complete a summary of the main complex process discussed in the program.

2. Think of a problem that you may have had when preparing food, e.g.: gravy going lumpy, or burning a piece of toast. Using the information from the program, you are to explain what happened and how it could be prevented in the future.

3. Complete the enzymatic browning experiment in class and record all results.

4. Discuss the links between food, food processing, nutrition, health and overall well-being.

5. Apply the knowledge of physical, chemical, sensory and functional properties of food in a practical situation.