

Study Programme: Food Engineering
Course Unit Title: Production and application of dietary fibers
Course Unit Code: M2IUH3
Name of Lecturer(s): Dragana Šoronja Simović, Zita Šereš
Type and Level of Studies: Master Academic Studies
Course Status (compulsory/elective): Elective
Semester (winter/summer): Summer
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 7
Prerequisites: None
<p>Course Aims:</p> <p>Acquiring knowledge about physicochemical properties, physiological role and production of food grade fibers that originate from different plant sources, with great emphasis on the influence of production conditions on their properties. Acquiring knowledge about the possibilities of using fibers in the production of functional food products, added value products, as well as the technological problems that may arise during certain stages of the production process. One of the course aims is to connect the theoretical and practical knowledge about dietary fibers for the purpose of their future application in operating conditions.</p>
<p>Learning Outcomes:</p> <p>Students will be taught to understand the physical and chemical phenomena that occurs with implementation of dietary fibers in food products. They will acquire enough knowledge to produce or modify dietary fibers from different sources on their own. On the basis of acquired knowledge, students would be able to successfully select and utilize the most favorable physicochemical and functional characteristics of fibers from different sources and recognize the possibility of their application in food production.</p>
<p>Syllabus:</p> <p><i>Theory</i></p> <p>1) Definition and occurrence of fibers 2) Fiber sources (fruits, peas, cereals, industrial plants) 3) Physical and chemical properties 4) Physiological role, 5) Fiber production (cellulose and its derivatives, pectin, cellulose-pectin fibers, rubber, resistant starch, inulin and beta glucan) 6) Influence of production conditions on fiber properties 7) Application of fibers in the production of functional food products (bakery, flour-confectionery, extruded products, dairy products, pasta, fruit products, instant products, creams, sauces, dressings, creams and filling for confectionery products, semi-permanent and permanent products of meat industry).</p> <p><i>Practice</i></p> <p>Laboratory exercises: 1) Content of soluble, insoluble and total fibers 2) Content of resistant starch 3) Physicochemical properties (solubility and hydration properties, particulate matter, antioxidant properties, ion-binding capacity, emulsion stabilization capability) 4) Laboratory procedures for cellulose and pectin fibers 5) rheological features of bread with addition of fiber 6) Testing of tea biscuits with fiber addition 7) quality of bakery and fine bakery products with fibers 8) Nutritive quality of products with fiber addition</p>
<p>Required Reading:</p> <ol style="list-style-type: none"> 1. Nelson A. L. (2001): High – Fiber Ingredients, Eagan Press Minnesota, St. Paul. 2. McCleary B.V., Prosky L. (2001): Advanced Dietary Fibre Technology, Blackwell Science, Oxford. 3. Gyura J., Šereš Z., Sakač M., Pajin B., Šoronja Simović D., Jokić A. (2010): Production of Dietary 4. Fiber from Sugar Beet Crops for Application in Food Industry, Editor: Claus T. Hertsburg: Sugar Beet Crops: Growth, Fertilization & Yield, Nova Science Publishers, New York, pp. 43-84, ISBN 978-1-60741-491-9, editor Claus T. Hertsburg. 5. Gyura J., Šereš Z., Šoronja Simović D., Pajin B. (2016): Proizvodnja i primena prehrambenih vlakana I deo,

Weekly Contact Hours:**Lectures: 3****Practical work: 3****Teaching Methods:**

Lectures, interactive lectures using modern presentation methods, laboratory exercises, consultations, group work.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	
Practical work	10	oral exam	60
Preliminary exam(s)		
Seminar(s)	20		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.