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| Study Programme: Food engineering |
| Course Unit Title: Alternative sugar sources |
| Course Unit Code: M11UH2 |
| Name of Lecturer(s): Zita Šereš, Nikola Maravić |
| Type and Level of Studies: Master Academic Studies |
| Course Status (compulsory/elective): Elective |
| Semester (winter/summer): Winter |
| 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: The aim of the course is to expand the knowledge of various sugar rich sources, as an alternative sources in sugar production. Introduction of sugar physicochemical characteristics, as well as different sugar types from various plant sources with accent on the influence of production parameters on their characteristics. Acquiring knowledge about new sugar production technologies, as well as technological problems that occur during certain production stages. Gathering skills in connecting theoretical and practical knowledge with the aim of their future application in factory conditions.</p> |
| <p>Learning Outcomes: Students with gathered knowledge are trained to successfully choose and use the best physicochemical and functional characteristics of several sugars from various sources and recognize their ability to be used in food production, as well as apply principles from most modern technologies, with consideration of technological, economical and environmental effect.</p> |
| <p>Syllabus:</p> <p><i>Theory</i></p> <p>Sugar sources; Classification of sugar sources; Sugar cane; Production of sugar from sugar cane; Sugar beet molasses processing – new technologies; Maple syrup; Honey; Alternative sugar sources: coconut, carob, sweet potato; Sources of sweet oligosaccharides: artichoke, chicory; High calorie sweeteners: invert sugar, molasses from sugar beet, sugar cane, soy and new generation sweeteners; Low calorie sweeteners: stevia, aspartame, acesulfame, protein-based sweeteners, sweet taste enhancers. Nutritional and health aspects; Regulations; Application of various sugars and sweeteners in food products.</p> <p><i>Practice</i></p> <p>Laboratory work: determination of physicochemical and qualitative parameters of sugar from sugar cane, coconut sugar, honey and invert sugar. Determination of chemical composition of sugar from various sources and qualitative comparison. Desaccharification of molasses. Sensory evaluation of low and high calorie sweeteners.</p> <p>Review: In written form on the topic included in the course, using clear, expert language with conclusions based on the correctly understood work aim.</p> |
| Required Reading: |

1. Šereš Z.: Ultrafiltracija u industriji šećera (Monograph), Tehnološki fakultet Novi Sad,
2. Jokić A., Zavargo Z., Šereš Z., Grahovac J., Dodić J. (2015). Osmotic Dehydration of Sugar,
3. McCleary B.V., Prosky L. (2001): Advanced Dietary Fibre Technology, Blackwell Science, Oxford,
4. Šušić S. et al.: Osnovi tehnologije šećera I and II, Industrija šećera Jugoslavije and
5. Gyura J., Šereš Z., Šoronja Simović D., Pajin B. (2016): Proizvodnja i primena prehrambenih vlakana.

Weekly Contact Hours:

Lectures: 3

Practical work: 3

Teaching Methods: Interactive lectures with contemporary presentation methods, laboratory work, consultations. Laboratory work includes the use of complicated instruments and devices specific to the subject of the course.

Knowledge Assessment (maximum of 100 points):

| Pre-exam obligations | points | Final exam | points |
|-----------------------------|--------|-------------------|--------|
| Active class participation | 5 | written exam | / |
| Practical work | 15 | oral exam | 40 |
| Preliminary exam(s) | 20 | | |
| 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.