Dietary supplement and phytochemicals

1. Code: 108331
2. Unit: 3(2-3)
3. Course: Dietary supplement and phytochemicals
4. Curriculum : Food Science and Technology
5. Degree : Bachelor degree for Japanese students
6. Semester: 2/2019

7. Faculty/Department: Agro Industry
Faculty of Agriculture Natural Resources and Environment
Naresuan University, Phitsanulok, Thailand

8. Course description

Dietary supplement, nutraceutical, phytochemicals and functional foods. Classification of bioactive compounds by their chemical structures. Bioactive properties as health promotion. Antioxidant analysis (*in vitro*).Polysaccharides, prebiotics and probiotics. Separation technologies. Secondary metabolites from bacteria.

9. Objectives

11.1 To understand the definition of health food, the active ingredients used in health food

11.2 To understand phytochemicals as nutraceuticals in fruits and vegetables, their bioactive activity, and antioxidant assay

11.3 To learn the separation technology and secondary metabolites from bacteria and yeast

10. Instructors /Lecturers

12.1 Assist Prof Dr. Monthana Weerawatanakorn (course coordinator) Tel 0629514194

12.2 Assist Prof Dr. Wannaporn Klangpetch

12.3 Assist Prof Dr. Juanggiun Jumpathong

12.4 Assist Prof Dr. Panatpong Boonnoun

11. Lecture room and time

Thursday 1.00 pm – 14.00 pm, AG 5306 (the third floor)

12. Course Outline

Weeks	Topics	Times	Date	Instructors/Lecturers
1	Dietary Supplements, functional food, nutraceuticals (Definition)	3 hr	11/28/2019	Dr. Monthana
2	Active ingredients in foods -Polyunsaturated fatty acid and other lipid -Protein, probiotics, prebiotic Co-Q10 and others	3 hr	12/05/2019	Dr. Monthana
3	Polysaccharides, prebiotics and probiotics Definition and benefit	3 hr	12/12/2019	Dr. Wannaporn
4	Polysaccharides, prebiotics Extraction, analysis, related research	3 hr	12/19/2019	Dr. Wannaporn
5	Natural products from fruits and vegetables - Classification, health benefit, food application	3 hr	12/26/2019	Dr. Monthana
6	Natural products from fruits and vegetables - Classification, health benefit, food application	3 hr	01/02/2020	Dr. Monthana
7	Phytochemical as antioxidants - Bioactivity as antioxidants - Antioxidant capacity test: Analysis by in vitro method	3 hr	01/09/2020	Dr. Monthana
8	Midterm examination	3 hr	01/11-01/19	Dr. Monthana
9	Secondary metabolites from bacteria/yeast	3 hr	01/23/2020	Dr. Juanggiun

10	Secondary metabolites from bacteria/yeast	3 hr	01/30/2019	Dr. Juanggiun
11	Introduction to separation technology --Drying of solid and evaporation process	3 hr	02/06/2020	Dr. Panatpong
12	Supercritical fluids application Subcritical fluid application (experimental)	3 hr	02/13/2020	Dr. Panatpong
13	Crystallization and adsorption	3 hr	02/20/2020	Dr. Panatpong
14	Hot issue of nutraceutical	3 hr	02/27/2020	Dr. Monthana
15	Hot issue of nutraceutical	3 hr	03/05/2020	Dr. Monthana
16	Assignment (presentation)	3 hr	03/12/2020	Dr. Monthana
17	Final examination	3 hr	03/14-03/29 2020	Dr. Monthana

13. Reading List

1. Morello, M. J., Shahidi, F., Ho, C. T. 2002. Free radicals in Food. American Chemical Society, Washington, DC.

2. Alias, C., and Linden, G. 1991. Food Biochemistry. Ellis Horwood Limited, London.

3. Ho, C. T., Simon, J. E., Shahidi, F., Shao, Y. 2008. Dietary supplements. American Chemical Society, Washington, DC.

4. Fennema, O.R. 2007. Food Chemistry, 4 thed. Marcel Dekker, Inc.

5. Wildman, R. E. C.2001. Handbook of Nutraceuticals and Functional Foods. CRC press. Boca Raton, London, New York, Washigton, DC.

6. Chow. C. K. 1992. Fatty acids in foods and their health implications. Marcel Dekker, Inc.

7. Stephen, A.M. 1995. Food Polysaccharides and Their Applications. Marcel Dekker, Inc. New York.

14. Teacher Evaluation

Evaluators	Score	
	Midterm	Final
1. Dr. Monthana	28	
2. Dr. Wannaporn	15	
3. Dr. Panatpong		20
4. Dr. Juanggiun		15
assignment		22
Total	43	57

15. Evaluation criteria

Scores	Grade
≥80	A
75-79	B^+
70-74	B
65-69	C^+
60-64	C
55-59	D^+
50-54	D
<50	F