Module Course



UNIVERSITAS JEMBER FACULTY OF AGRICULTURAL TECHNOLOGY DEPARTMENT OF AGRICULTURAL PRODUCT TECHNOLOGY

KODE DOKUMEN

F1.03.05

COURSE

| Module Course | | | |
|---------------|---|--|--|
| Name | Fat and Essential Oil Processing Technology | | |
| Kode | TPU 1002 | | |
| Credit (SKS) | 2 SKS Face to Face; 0 SKS Practice | | |
| Semester | 6 | | |

Person(s) Teaching

- Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D.
- Ir. Mukhammad Fauzi, MSi.
- Dr. Maria Belgis, S.TP., M.P.

DESCRIPTION OF COURSE

This course discusses the definition, physicochemical properties of oils/fats and essential oils; process and method of extraction and purification of oil/fat and essential oil; oil/fat breakdown mechanism during processing; quality standards and fat/oil analysis; discuss potential sources of fats/oils and essential oils that can develop, utilization of fats/oils for food and non-food; and will discuss fat/oil engineering technology

| 1000 and non 1000, and will discuss fat, on engineering technology | | | | |
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| LO – Programme Learning Outcome | | | | |
| No LO | Statement of Learning Outcome (LO) | | | |
| LO-4 | Able to design food products and agricultural products based on local | | | |
| | agro-industry commodities | | | |
| LO-7 | Able to evaluate chemical, enzymatic, microbiological, physical changes, | | | |
| | technical functional properties and health functional properties of food and | | | |
| | agricultural products | | | |
| Course Learning Outcome (CLO) | | | | |
| No CLO | Statement of CLO | | | |
| CLO-1 | Explain the characteristics of agricultural food based on fats and essential oils | | | |
| CLO-2 | Describe changes in the characteristics of foodstuffs and agricultural products | | | |
| | based on fats and essential oils during processing and storage | | | |
| CLO-3 | Explain the principles of testing agricultural products based on fats and | | | |
| | essential oils | | | |
| CLO-4 | Design the processing and engineering of food products based on fats and | | | |
| | essential oils | | | |
| CLO-5 | Designing a model for packaging and storage of food products based on fats | | | |
| | and essential oils | | | |
| SUB COURSE LEARNING OUTCOME (Sub-CLO) | | | | |
| No | Statement of Sub-CLO | | | |
| Sub-CLO | | | | |

| 1 | Students can explain the characteristics of agricultural food based on fats and essential oils |
|---|--|
| 2 | Students can explain changes in the characteristics of foodstuffs and agricultural products based on fats and essential oils during processing and storage |
| 3 | Students can explain the principles of testing agricultural products based on fats and essential oils |
| 4 | Students can design the processing and engineering of food products based on fats and essential oils |
| 5 | Students can design packaging and storage models for food products based on fats and essential oils |

LEARNING TOPIC

- Definition and physicochemical properties of oils/fats and essential oils
- Oil/fat and essential oil extraction processes and methods
- Oil/fat breakdown mechanism during processing
- Quality standards and fat/oil analysis
- Potential sources of fat/oil and essential oil that can develop
- Utilization of fats/oils for food and non-food
- Fat/oil engineering technology

MAIN REFERENCES

- Ketaren, S. (1986). Minyak dan Lemak Pangan. UI-Press, Jakarta
- Akoh, C.C dan D. B. Min. (2002). *Food Lipids: Nutrition, Chemistry, and Biotechnology*. New York: Marcel Dekker, Inc
- Gustone, F. D. (2002). *Vegetable Oils in Food Technology : Composition, Properties, and Uses*. UK : Blackwell Publishing
- Rajah, K.K. (2002). Fats in Food Technology. Sheffield Academic Press Ltd, UK
- Fauziah, RR., S. Ogita, T. Yoshino, Y. Yamamoto, 2020. Effect of Molecular Form of Conjugated Linoleic Acid on Oxidative Stability: Comparison of Triacylglycerol and Phosphatidylcholine Form. Journal of Oleo Science. Vol. 69 No. 8

ADDITIONAL REFERENCES

PREREQUISITES COURSE (If any)

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| TIMELINE | | | | |
|----------|---|--------------------------|--|--|
| WEEK(s | Components | Person(s) | | |
|) | | | | |
| 1 | Definition, character and chemistry of essential oils | Dr. Maria Belgis, S.TP., | | |
| | | M.P. | | |
| 2 | Uses and biological activity of essential oils | Dr. Maria Belgis, S.TP., | | |
| | | M.P. | | |
| 3 | essential oil extraction technology | Dr. Maria Belgis, S.TP., | | |
| | | M.P. | | |
| 4 | Indonesian plant essential oil components | Dr. Maria Belgis, S.TP., | | |
| | | M.P. | | |

| 5 | development of essential oil research | Dr. Maria Belgis, S.TP., M.P. |
|----|--|--|
| 6 | understanding, classification, and physicochemical properties of oils/fats | Ir. Mukhammad Fauzi, MSi. |
| 7 | oil/fat extraction principle | Ir. Mukhammad Fauzi, MSi. |
| 8 | oil/fat refining process | Ir. Mukhammad Fauzi, MSi. |
| 9 | oil and grease damage | Ir. Mukhammad Fauzi, MSi. |
| 10 | quality standards and methods of analysis of fats and oils | Ir. Mukhammad Fauzi, MSi. |
| 11 | Industry prospects and potential sources of oil/fat | Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. |
| 12 | potential source of fat/oil | Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. |
| 13 | Oils and Fats for food and non-food | Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. |
| 14 | Oils and Fats for food and non-food | Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. |
| 15 | Oils and Fats for food and non-food | Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. |
| 16 | engineering technology in oil/fat processing | Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. |

Jember, October 2022

Chief of Department

Person(s) coordinator

Dr. Triana Lindriati, S.T., M.P NIP 3509205408680001 Riska Rian Fauziah, S.Pt., M.P., M.Sc., Ph.D. NIP 3509296709850003