



SH03063: NATURAL COMPOUNDS (HỢP CHẤT THỨ CẤP THIÊN NHIÊN)

Credits: 2 credits (Lecture: 2 – Practice: 0)

EXPECTED LEARNING OUTCOMES

| Course objectives | COURSE EXPECTED LEARNING OUTCOMES After successfully completing this course, students are able to | Expected learning outcomes of program |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Knowledge | | |
| CELO1 | Understanding the basics of secondary metabolic compounds and list the origin, classification, distribution, and biological and chemical characteristics of these compounds. | ELO3, ELO14 |
| CELO2 | Understanding the metabolic pathways and the formation of secondary compounds and then apply them to the exploitation and application of these compounds to create biological products for use in medicine, pharmaceutical and plant protection modules. | ELO3, ELO14 |
| CELO3 | Identifying, analyzing the demand and requirement of natural compounds in biotechnology, agriculture and pharmacy and medicine. | ELO3, ELO14 |
| Skills | | |
| CELO4 | Applying good techniques and method for extraction, detection, analysis and use of secondary compounds. | ELO13, ELO14 |
| Personal autonomy and responsibility | | |
| CELO5 | Acting professionally, lawfully, honestly and responsibly to natural resources, genetic diversity, especially herbal plants. Proactively update and accumulate knowledge and experience to improve professional qualifications. | ELO13, ELO15 |

CONTENT

- Chapter 1: An overview of secondary natural compounds
- Chapter 2: Classification of secondary natural compounds and the pathways of biosynthesis
- Chapter 3: Extraction method and identification of groups of natural secondary compounds
- Chapter 4: Biological activity and application of secondary natural compounds
- Chapter 5: Apply biotechnology in conservation, exploitation, development and application of secondary compounds
- Practice: Lab equipments, Extraction and detection of some groups of natural compounds



STUDENT TASKS

- Attendance: Students are required to attend at least 2/3 of the total theory lectures of the course.
- Preparation for the lecture: Students are required to read lecture notes, text books and references before attending the class.
- Group discussion and presentation: Students are required to engage in group discussion.
- Mid-term exam: Students miss a mid-term will be given a mark of zero.
- Final exam: Students must take the final exam and meet requirements.
- For online learning: Students need to install online learning software and fulfill the requirements for online learning.



ASSESSMENT METHODS

- Attendance: According to regulations of VNUA.
- Exercise and progress tests: Students must complete the exercises, 15-minute tests, group discussion and presentation with satisfied results.
- Mid-term exam: Midterm exam is 50 minutes long with a 50-question quiz.
- Final exam: Final exam is 50 minutes long with a 50-question quiz.
- For online evaluation: Students need to install software and fulfill the requirements for online evaluation.
- Grading: 10 marks
- Weighting:
 - ✓ Attendance: 10 %
 - ✓ Formative assessment: 30%
 - ✓ Final exam: 60%

LECTURERS

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LEARNING METHODS

- Read lecture notes, books and references before attending the class.
- Students are required to listen to lectures in class and perform other learning activities such as solving practice problems after class.
- Prepare and actively participate in discussion.