

## Module Descriptions

<b>Module designation</b>	<b>Natural Product Chemistry</b>
Semester(s) in which the module is taught	7 <sup>th</sup> / fourth year
Person responsible for the module	Prof. Dr. Suyatno, M.Si.
Language	Bahasa Indonesia
Relation to curriculum	Elective Course
Teaching methods	Project Method
Workload (incl. contact hours, self-study hours)	1 CU for a bachelor's degree equals 170 minutes (50 minutes face-to-face, 60 minutes structured, 60 minutes independent learning) per week × 14 weeks, excluding mid and end-term exams. = 39.67 work hours per semester = 1.587 ECTS.
Credit points	2 Credit Units (CU) = 3,18 ECTS
Required and recommended prerequisites for joining the module	Polifunction Organic Chemistry
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> <li>1. Students master the basic concepts of secondary metabolites and their benefits to humans.</li> <li>2. Students are able to use the concepts of secondary metabolites to screen, isolate, and test the bioactivity of secondary metabolites.</li> <li>3. Students make decisions based on the analysis of the results of screening, isolation, and testing the bioactivity of secondary metabolites.</li> <li>4. Students are able to develop extracts or isolates as herbal medicinal ingredients.</li> </ol>
Content	Study of the benefits of secondary metabolites as bioactive compounds in the field of pharmacology and pharmaceutical industry, studying the chemistry of secondary metabolite compounds of the terpenoid, steroid, phenylpropanoid, polyketide, flavonoid, and alkaloid groups, their benefits and distribution in plants (medicine), screening techniques, isolation and bioactivity testing and their role in the development of the pharmaceutical industry. Lectures are conducted using discussion methods, presentations, industrial visits, and journal reviews.
Examination forms	Essay and Oral Presentation
Study and examination requirements	<p>The final grade (NA) is calculated according to the formula:</p> <p>Participatory Activities: 47.50%,            Project Result Assessment/Product Assessment: 52.50%</p> <p>Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.</p>

Reading list	<ol style="list-style-type: none"><li>1. Tukiran (2010). Kimia Bahan Alam. Surabaya: Unesa University Press.</li><li>2. Tukiran (2015). Kimia Bahan Alam (KBA) Berbasis Field Study dan Pendekatan Chemo-Entrepreneurship. Surabaya: Unesa University Press.</li><li>3. Leny Heliawati (2018). Kimia Organik Bahan Alam. Pascasarjana.</li><li>4. Tatang Shabur Julianto (2019). Fitokimia. Tinjauan Metabolit Sekunder dan Skrining Fitokimia. Yogyakarta : Universitas Islam Indonesia.</li></ol>
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