



Diponegoro University
Faculty of Science and Mathematics
Undergraduate Program Of Chemistry

Module designation	Natural Materials Chemistry (BA)
Semester(s) in which the module is taught	5
Person responsible for the module	Dr. Meiny Suzery, MS, Dra. Dewi Kusriani, Msi
Language	Indonesian
Relation to curriculum	Compulsory /elective/ specialisation
Teaching methods	Lecture
Workload (incl. contact hours, self-study hours)	Face to face : 1 x (2 x 50 min); Structured study: 1 x (2 x 60 min); Self study: 1 x (2 x 60 min)
Credit points	2
Required and recommended prerequisites for joining the module	KO3

Module objectives/intended learning outcomes	<p>(S9) Demonstrates an attitude of being responsible for work in his field of expertise independently</p> <p>(KU1) Able to apply logical, critical, systematic, and innovative thinking in the development or implementation of science and technology that pays attention to and uses humanities values by their field of expertise</p> <p>(KU2) Able to demonstrate independent, quality, and measurable performance</p> <p>(PP1) Mastering the theoretical concepts of structure, properties, changes, kinetics, and energetics of molecules and chemical systems, identification, separation, characterization, transformation, synthesis of micromolecular chemicals, and their application</p> <p>(M1) can explain the classification & biogenetic origin of secondary metabolite compounds</p> <p>(M2) can explain the classification of secondary metabolites based on regularity</p> <p>(M3) can explain several chemical reactions & synthesis of terpenoids, phenylpropanoids, polyketides, flavonoids, and alkaloids</p> <p>(M4) can describe the classification & structural variations of various terpenoids, phenylpropanoids, polyketides, flavonoids, and alkaloids</p> <p>(M5) can explore and design metabolites in living organisms</p> <p>(M6) can explain several organic reactions related to the determination of the structure of terpenoids, phenylpropanoids & polyketides, flavonoids, and alkaloids</p> <p>(M7) can show the role & benefits of several organic compounds from natural ingredients</p>
--	--

Content	<ol style="list-style-type: none"> 1. Definition, the origin of natural biological compounds 2. Inter-molecular and biomolecular interactions 3. Molecular structure, Intermolecular Interaction, biomolecules 4. Molecular structure, compound reactivity, compound reaction, intermolecular interactions <ol style="list-style-type: none"> a. Steroid biosynthesis b. Biological activity of steroids c. Effect of steroid stereochemistry on chemical reactions carried out d. Hubs. Between the structure and the biological activity of steroids 5. Compound Reaction, Intermolecular Interaction/ Biomaterial Engineering 6. Molecular structure, compound reactions, intermolecular interactions <ol style="list-style-type: none"> a. Biosynthesis of flavonoids b. Biological activity of flavonoids c. Hubs. Between the structure and the biological activity of steroids
Exams and assessment formats	Mid-Semester Exam and Final Exam
Study and examination requirements	Participatory Activities -20% Project Results -30% Task -10% Quiz -10% Mid-semester -15% Final exams -15%
Reading list	<ol style="list-style-type: none"> 1. Manitto, P., 1992, Biosintesis Produk Alami (terjemahan oleh Dra. Koensoemardiyah, Apt. SU.), IKIP Semarang Press 2. Achmad, S.A., 1985, Kimia Organik Bahan Alam, Modul 1 – 3, Dep. P & K Universitas Terbuka 3. Achmad, S.A., 1985, Kimia Organik Bahan Alam, Modul 4 – 6, Dep. P & K Universitas Terbuka