

معلومات المقرر \* (Course Information):

اسم المقرر:	كيمياء النواتج الطبيعية
رقم المقرر:	٤٢٦
اسم ورقم المتطلب السابق:	كيمياء عضوية حلقيه غير متجانسة ٢٢٣
اسم ورقم المتطلب المرافق:	لا يوجد
مستوى المقرر:	السابع
الساعات المعتمدة:	٣ ساعات معتمدة
<b>Module Title:</b>	Chemistry of Natural products
<b>Module ID:</b>	CHM ٤٢٦
<b>Prerequisite (Co-requisite) :</b>	Heterocyclic organic chemistry
<b>Co-requisite :</b>	None
<b>Course Level:</b>	7 <sup>th</sup> level
<b>Credit Hours:</b>	Three credit hours

Module Description

وصف المقرر :

This course is provide in the seventh level with three credit hours.

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This course is designed to serve as a comprehensive overview of secondary metabolites compounds and the origin natural products from sources such as plants, fungi and bacteria, will be emphasized on classification, nomenclature, structures, biosynthesis, analysis besides information about their medicinal uses and structural activity relationship. The course provides fundamental knowledge to natural products chemistry, including the distribution of secondary metabolites, biosynthesis and their function in biological systems and bioactive natural products in plants and fungi.

Practical part of this course demonstrates different techniques used within natural product chemistry and provides an understanding of the chemical constituents of crude extracts from some medicinal plants focusing on methods of extraction, identification, qualitative and quantitative determination.





Module Aims

أهداف المقرر :

1	provides fundamental knowledge to natural products chemistry	١
2	Identify different types of natural products, their occurrence, structure, biosynthesis and properties.	٢
3	Enable the student to achieve a fundamental knowledge of natural products chemistry, including the distribution of secondary metabolites, biosynthesis and their function in biological systems	٣
4	Acquire skills to evaluate the properties of bioactive natural products and their structure-activity relations,	٤
5	Demonstrate a strong theoretical knowledge of the principles of natural products.	٥
6	Acquire skills to does different techniques within natural product chemistry	٦

Learning Outcomes:

مخرجات التعليم:

Upon successful completion of this course, the student will be able to :		
1	Demonstrate competence to classify natural products based on their chemical structure and indicate their possible biosynthesis	١
2	Discuss the major classes of secondary metabolites and the variety and complexity of chemical structures. .	٢
3	Assess the properties of bioactive natural products and their structure-activity relations	٣
4	Communicate and relate critically to the content in scientific papers on the subject.	٤
5	carry out independent investigations of plant materials and natural products.	٥
6	Explain the overall principles on how to isolate and characterize bioactive natural products from plants and microorganisms	٦





محتوى المقرر: Course Contents:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
4	٢	Introduction: Concepts of natural product chemistry. Traditional and modern approaches to the study of natural products ,chemistry of natural products and classification of the various classes of natural products.
٢	١	General methods of isolation, separation, purification, and structure determination of the natural products.
٦	٣	Chemistry of of terpenes, the structure ,classification and biosynthesis of the terpenes, building blocks of Monoterpenes sesquiterpenes diterpenes and triterpenes based on the combination of a given number of isoprene units. Medicinal use of terpenes,
٤	٢	Chemistry of of steroids , general properties of the steroids, the structure, ,classification and biosynthesis of steroids. The importance of these compounds to humans will be mentioned.
٦	٣	Chemistry of of alkaloids, general properties of the alkaloids; the structure, ,classification and biosynthesis of alkaloids. The importance of these compounds to humans will be mentioned.
٦	٣	Chemistry of flavonoids ,The general definition of flavonoids, , general properties, the structure, their classifications,. The uses and benefits will be explored.
٢	١	Other natural products of current interest
٣٠	١٥	Total
		Practical part :
		Techniques and methodologies for the extraction and separation methods of natural products from plants
		Techniques and methodologies for the isolation and purification methods of natural products from plants
		The instrumental characterization techniques of IR, NMR, Mass Spectroscopy, Liquid and Gas Chromatography are applied in studying compounds of interest.
٢٨	١٤	Total





الكتاب المقرر والمراجع المساندة: Textbook and References:

ISBN	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
ISBN 0-471-97477-3	1997	Wiley	Dewick, P.M.,	Medicinal Natural Products
9788177585414	2002(5e)	Publisher: Pearson India	I.L Finar	Organic Chemistry, Volume 2: Stereochemistry and the Chemistry Natural Products
	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم المرجع Reference
	٢٠٠٩	3 <sup>rd</sup> Edition by Wiley	Paul M. Dewick, John	<i>Medicinal Natural Products: A biosynthetic approach</i>

\* يتم تعبئة معلومات المقرر فقط باللغتين العربية والانجليزية وباقي المعلومات بلغة التدريس المعتمدة ويكرر لكل مقرر في الخطة الدراسية

\* Course Information should be filled in Arabic and English. Other information should be filled using the approved teaching language at the college.



