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DETERMINATION OF ALKALOIDS PRESENT IN THE LEAVES OF CATHARANTHUS ROSEUS L

Annotation: *Catharanthus roseus leaves was collected from Hama Governorate from Sureihin village in September of 2019. A drug study was conducted on the leaves of the plant, and the alkaloids in the leaves were isolated and determined with their percentages in the chloroformic extract using GC-Mass technique, and they were eight alkaloids:*

Isovindolinine, Vindolinine, Pleiocarpamine, Coronaridine, Vindorosine, Tetrahydroalstonine, Vindoline, Ajmalicine.

Key words: *Catharanthus roseus L, Pharmacognostic study, alkaloids, GC-Mass.*

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ОПРЕДЕЛЕНИЕ СОДЕРЖАНИЯ АЛКАЛОИДОВ В ЛИСТЬЯХ CATHARANTHUS ROSEUS L

Аннотация: *Листья Catharanthus roseus были собраны в провинции Хама из деревни Сурейхин в сентябре 2019 года. Лекарственное исследование было проведено на листьях растения, и алкалоиды в листьях были выделены и*

определены с их процентным содержанием в хлороформном экстракте с использованием метода GC-Mass, и они составляли восемь алкалоидов:

Изовиндолинин, Виндолинин, Плейокарпамин, Коронаридин, Виндорозин, Тетрагидроалстонин, Виндолин, Аджмалицин.

Ключевые слова: *Catharanthus roseus L, Фармакогностическое исследование, алкалоиды, GC-масса.*

1-Introduction:

Medicinal plants have a long history of use in traditional medicine. Information about medicinal plants and their use by indigenous cultures is helpful in preserving traditional cultures, biodiversity, community health care and drug development. Catharanthus roseus L. (G.) Don, an important medicinal plant belonging to the Apocynaceae family; This plant is a two-cyclamen angiosperm that synthesizes the alkaloids of two indolene soil: Vinbla Steen and vincristine used to fight cancer. Picault, in 1910, described the use of Brazil to pump leaves to control bleeding and scurvy, as a mouthwash for toothache, and to heal and clean chronic wounds. [1,C.364,2,C.260] In Europe, related species were used to suppress the property of milk flow. In the British West Indies, it has been used to treat diabetic ulcers, and in the Philippines, it has been shown to be an effective agent for oral hypoglycemia. More recently, Chopra has reported that total alkaloids possess limited antibacterial activity as well as significant and sustained antihypertensive action. Hypoglycemic and antibacterial activities have not been confirmed, although one of the alkaloids isolated from this plant, Agmlycine, has a transient antihypertensive activity on arterial blood pressure.[3,C.210]

Plant description: Herbaceous plant that grows up to 1-1.5 m) m, leaves are oblong-ovate, 2.5 - 9.0 cm), green in color, glossy and arranged in opposite pairs. The flowers are composed of five petals, ranging in color from white to dark pink with a dark red center, and their diameter is about (2.5-3 cm). The fruit is a pair of bulbs (2-4 cm) long. [4,C.273,5,C.1]

A: Catharanthus roseus leaves **B:** Catharanthus roseus flowers

2- Research objective:

This research includes the study of the active substances present in the leaves of the Vinca plant and aims to extract the raw alkaloids in this plant and to identify the alkaloids present in the leaves of the Vinca plant. Its importance comes through several things, including:

1) The interest of scientists (chemists, pharmacists and physicians) in the modern era in studying the active substances isolated in medicinal and non-medicinal plants and studying their chemical structures and their physiological and pharmacological effects and their use in the manufacture of medicine and agricultural toxins.

2) The global growing interest in alternative medicine based mainly on "wild and marine plants and herbs."

3) The use of plants that contain active substances, especially those containing glycosides alkaloids and flavonoids, as a folk and medical treatment for many diseases, such as infections, tumors, and others.

4) The richness of the Syrian environment with medicinal plants and the richness of our folklore with documented medicinal prescriptions transmitted over generations and relying on medicinal plants.

5) Given the importance of natural products, our goal of this research was to study the active substances in the Vinca plant and extract the alkaloids present in them due to their wide use in medicine and the interest of researchers in them.

3- Pharmacological study of vinca leaves:

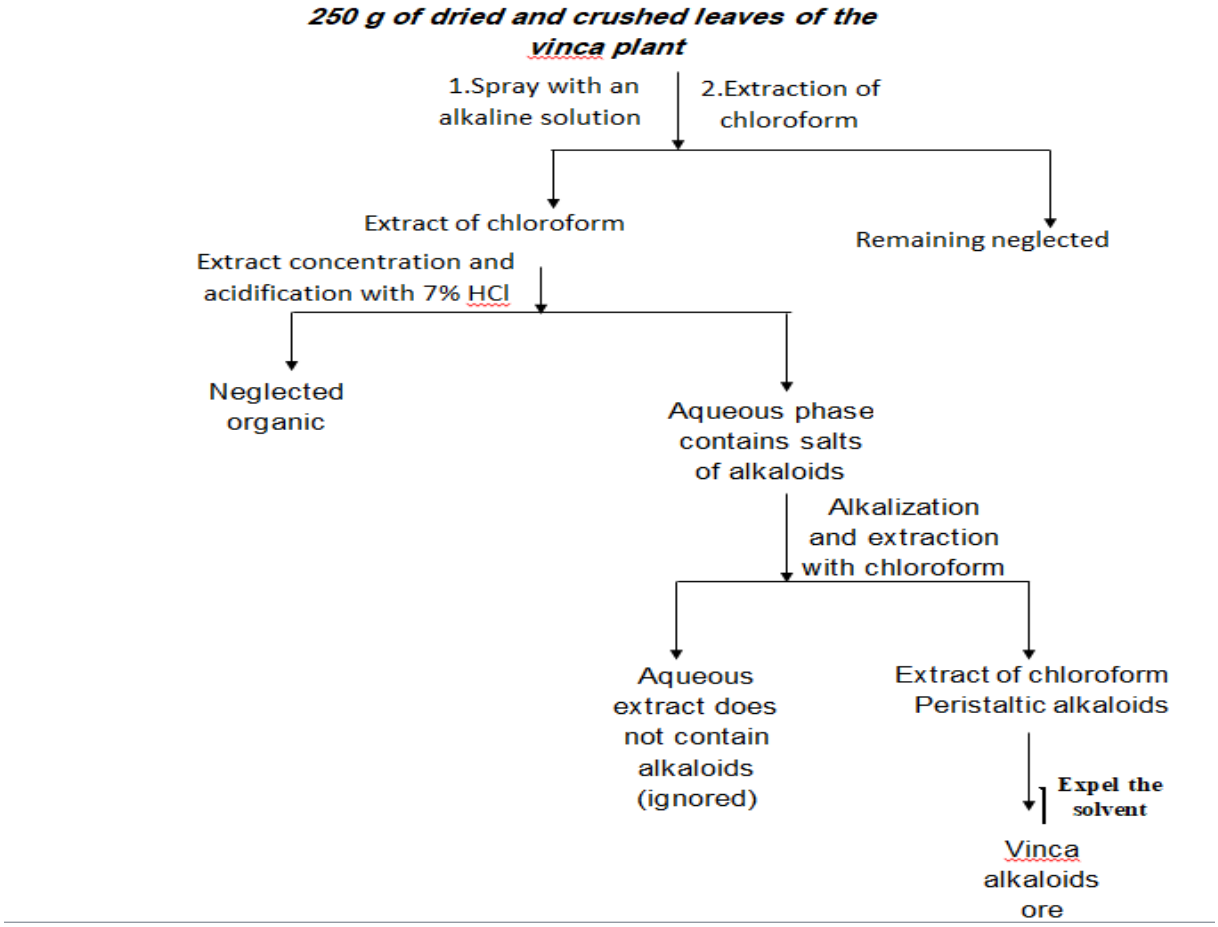
The cross-section of the paper shows that the outer layer of the paper is a thick-walled protective cortical sheet, covering the layer of epidermal cells of a rectangular shape, and the epidermis is intercepted by two-system pores in specific places. Its length is (100-150) microns and its width (15-20) microns. The interstitial tissue of the leaf is differentiated into a staple and spongy parenchyma. The fibrillar parenchyma is located completely under the upper epidermis and consists of a single layer of columnar cells that contain the chloroplasts. As for the spongy parenchyma, it comes under the nostril parenchyma in the form of (3_4) disjointed layers above the lower epidermal region (2_3) layers of strongly compacted colanchyma cells. The color of the powder ranges from green green to olive green, and it smells like henna and has a slightly bitter taste. ”The microscopic study shows the presence of parts of the skin with bisystemic pores, single-celled and non-glandular filaments, and single-stranded filaments with (2-4) cells and parts of the retinal parenchyma, retinal vessels and vessels Helical and annular.

4-The practical section

The total leaves of the vinca plant were collected from Hama governorate from the village of Serihin in September of 2019. The leaves were dried in a well-ventilated place away from sunlight. The drying process took 7 days. After drying, the dry leaves were ground and weighed and it was 250 gr.

C: Concentrated chloroform extract

The leaves were soaked in chloroform for three days, stirring periodically, then the solvent was expelled. We obtained a chlorocorm extract, which is a dark green mass weighing 7.14 gr. The chloroform extract was taken and the alkaloids raw for leaves were extracted from it according to the following scheme:



D: General scheme for the extraction of alkaloids present in vinca leaves

F: Raw alkaloids of vinca leaves

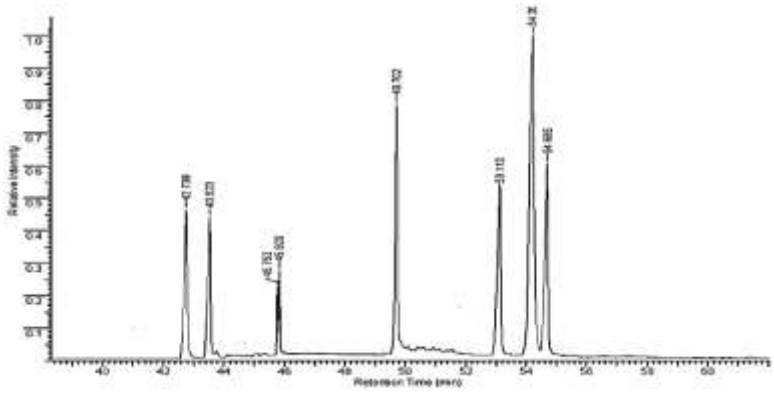
5- Results and discussion:

The weight of the alkaloids ore obtained was 0.17 gr and therefore it is (2.88%) from the basic chloroform extract. The alkaloids ore obtained were taken and dissolved in (1.5 ml) of chloroform, and the sample was taken after dissolution to a GC-Mass device in atomic energy.

Terms of experience:

DB-5MS	Column type
He	The type of carrier gas
230	The temperature of the (C^o) syringe
0.2	(ml\min) Gas flow rate

The initial temperature of the used column was 30 ° C for 5 minutes, then increased to 240 ° C at a rate of 30 ° C min, and at 240 ° C at a rate of 6 ° C per minute (kept it constant for 10 minutes), then increased to a final temperature It is 280 degrees Celsius. This temperature was kept for 30 min. The mass spectra were taken at 70 eV. The total runtime for the sample was approximately 72 min. Figure G also shows the chromatogram of the alkaloids crude sample:

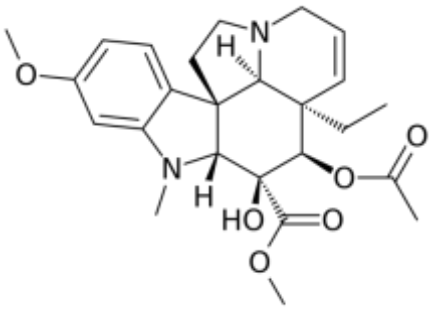


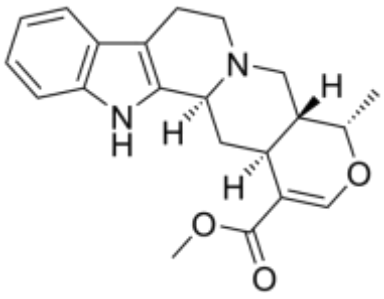
G: Alkaloids sample chromatogram of vinca plant leaves

The chromatogram shows eight clear peaks, and this is evidence of the presence of eight alkaloids in the raw leaves of the Vinca plant, and from the data of the GC-Mass device, the results for these compounds can be listed in the following table:

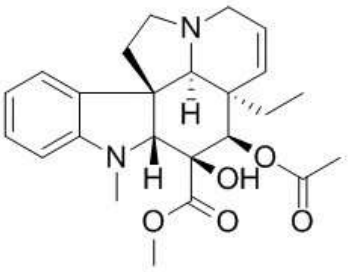
No.	**compound**	**r.time (min)**	**area %**
1	Isovindolinine	42.73	10.128
2	Vindolinine	43.50	9.227
3	Pleiocarpamine	45.75	2.322
4	Coronaridine	45.82	3.180
5	Vindorosine	49.70	12.153
6	Tetrahydroalstonine	53.10	12.545
7	Vindoline	54.17	31.960
8	Ajmalicine	54.66	12.762
			94.72 % total.

Isolated compound formulas:

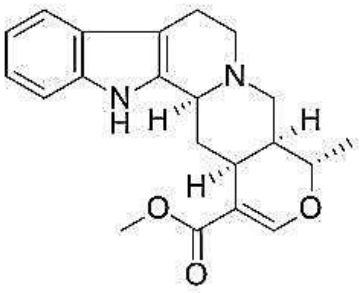




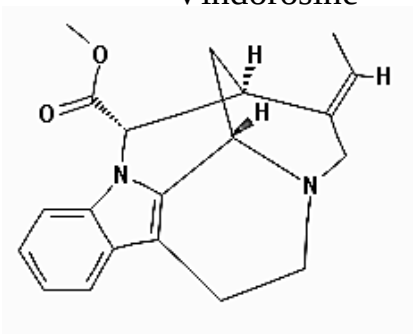
Vindoline Ajmalicine



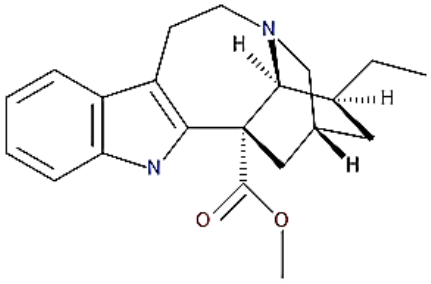
Vindorosine



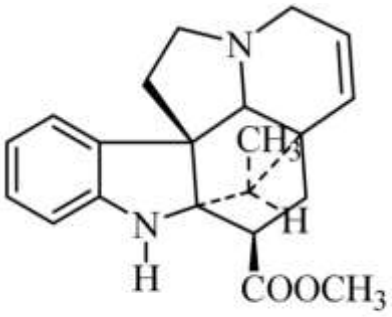
Tetrahydroalstonine



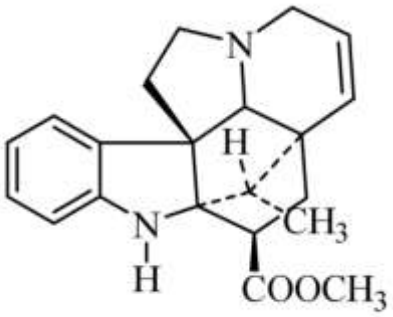
Pleiocarpamine



Coronaridine



Isovindolinine



Vindolinine

6 - Conclusions and Recommendations:

1- For the first time, isolation and identification of the alkaloids present in Vinca plant cultivated in the Syrian environment were performed.

2- Eight main alkaloids were determined in the leaves of the vinca plant.

3- The highest percentage was (31.960%) for the alkaloid Vindoline, while the lowest was (2.322%) for the alkaloid Pleiocarpamine.

4- It is advised to conduct more studies on this plant due to its wide medicinal uses.

5- We also recommend subsequent studies to separate and isolate previous alkaloids to study their biological properties due to the increased interest in alternative medicine.

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