Science Archives (2023) Vol. 4 (2), 154-161

Science Archives (ISSN:2582-6697)

Journal homepage: www.sciencearchives.org

https://doi.org/10.47587/SA.2023.4213

Research Article

Preliminary phytochemical screening of *Vinca roseus* leaves

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Received: May 30, 2023/ Revised: June 20, 2023/Accepted: June 23, 2023

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Abstract

Botanical medicine that fights the battle against various types of diseases not only in recent decades but also since the dawn of time, by using plant parts or plant as whole as it has low cost and lack of adverse effects. One of these plants that belongs to the Apocynaceae family is Vinca roseus which become widely distributed in tropical and subtropical areas. The aim of the present study was to investigate the phytochemical analysis of leaves of Vinca roseus growing in Egypt. Qualitative Phytochemical screening revealed the presence of Alkaloids, phenolics, Cardiac glycosides, Anthraquinone glycosides, Tannin, Flavonoids, Oils, Resins, Saponins and Protein. Gallic acid, Gums/Mucilages and Terpenoids were not noticeable. The results indicate that leaves extract of Vinca roseus can be used as a source of potential pharmaceutical agent especially in cancer.

Keywords: Antitumor Activity, Botanical Medicine, Phytochemical Constituents, *Vinca roseus*.

Introduction

Arya et al. (2023) reported that plants that are utilised for flavour, fragrance, dietary supplements, and medicinal purposes are called herbs. The World Health Organization (WHO) has advocated switching to conventional medical procedures that predominantly use plants, minerals, or herbs. With the aid of conventional and alternative medicine, the WHO developed the 13th General Programme of Work (GPW13) to ensure healthy lives and promote wellbeing for all age groups. Adaikan et al. (2001) claimed that since the beginning of time, plants have always had a significant impact on our everyday lives, whether as food or for their medical properties. The therapeutic potential of plants is now universally acknowledged and appreciated, particularly in developing nations, by both the scientific community and the general public. Humans have used plants as remedies at least since the Middle Palaeolithic, or around 60,000 years ago, according to fossil records. From that moment, the history of traditional medicinal systems that used plants as a form of healing can only be traced back to writings that depicted them (Fabricant & Farnsworth, 2001). According to estimates from the World Health Organization (WHO), 80% of people in both developed and developing countries rely on traditional medicines, particularly plant-based medicine, for primary healthcare (Chaachouay et al., 2022).

Sharma et al. (2008) according to reports, the main pharmaceuticals exported from India in recent years include isabgol, opium alkaloids, senna derivatives, vinca extract, cinchona alkaloids, ipecac root alkaloids, solasodine, Diosgenine/16DPA, Menthol, gudmar herb, papian, rauwolfia guar gum, Jasmine oil, agar wood oil, and sandalwood oil. One of the richest plant medicine traditions in the world is found in India. Schmidt et al. (2008) claimed that the first synthetic medication, aspirin, was developed in 1897 by Friedrich Bayer employees Arthur Eichengrün and Felix Hoffmann. Salicylic acid, a key component of herbal analgesics, was used to create aspirin (acetylsalicylic acid). An era dominated by the pharmaceutical business began with this achievement. When Alexander Fleming discovered Penicillin in 1928, he added bacteria to the list of crucial sources for new medications.

Mukunthan et al. (2011) said that *Vinca roseus*, a member of the *Apocynaceae* family and formerly known as *Vinca rosea* and more popularly known as Madagascar periwinkle, is one of these herbs, according to reports. Despite being a native of Madagascar, this plant has spread far due to its excellent adaptability to a range of settings and use as an attractive plant. In several nations, including South Africa, China, India, Mexico, and Malaysia, it has a long history of use as a traditional remedy (Saha et al., 2022). It is claimed to have opposing pairs of membranous, oblong or oval, glossy, hairless leaves that are greenish in colour. Depending on the cultivar, the flowers' hues range from pale to dark pink.

Due to its wide range of pharmacological properties and applications, *vinca roseus* has been employed in many traditional medical systems for a very long time (Verma et al., 2022).

Vinca leaves extract have following activities: antitumor and anticancer effects (Jadhav et al., 2023) and (Ramadan and colleagues 2023 unpublished data). Action against colorectal cancer (Bandopadhyaya et al., 2015) and (Ramadan and colleagues 2023 unpublished data). For treating diabetes and high blood pressure (Krause, 2019), antidiarrheal activity (Kyakulaga et al., 2011), brain disease (including Alzheimer's disease) (Chaturvedi et al., 2022), in case of toothache (Zhou & Rahmani, 1992), Antimicrobial activity (Renjini et al., 2017), and Antioxidant activity (Gülçi˙ n et al., 2012).

It is well established that active principal groups in medicinal plants are responsible for their pharmacological effects. To clarify these active principal groups of the plant we make phytochemical analysis, which may give *Vinca roseus* leaf extract (VRLE) evidence for use in traditional medicine for colorectal cancer treatment.

Although phytochemical analysis of *Vinca roseus* has been done in previous studies (Jayaraj et al., 2019), however this phytochemical makeup may vary from one country to another depending on the soil, the environment, and the geographic location. In order to better understand the major phytochemical groups that might be present in CRLE growing in Egypt and provide evidence for its potential therapeutic effects against colorectal cancer, this study has been conducted. Standard preliminary testing have been used to accomplish this goal.

Methods and Materials

Plant part used

Vinca roseus leaves that is commonly used in folk medicine was obtained from our local environment where the plant available at botanical gardens elsewhere in Egypt; 500 gm of the plant leaves were purchased from botanical garden at Alfyroz Garden®, Benha, Egypt and confirmed by a botany specialist (Fig.1).

Leaves of *Vinca roseus* were collected from Alfyroz Botanical Garden at Benha city in March. Then the plant leaves were washed with tap water to remove soil and unwanted dust particles, then washed with distilled water. Then the leaves were shaded, dried, and then chopped by using knife and extracts were prepared in ethyl alcohol, chloroform, methanol, benzene and aqueous solvents. Then the extracts were stored in bottles for further analysis.

Fig. 1 *Vinca roseus* leaves

Ethical Approval

Experiments for this study were ethically approved by the Scientific Research Ethics Committee (Animal Care and Use), Faculty of Veterinary medicine, Benha University, Benha, Egypt (Approval no. BUFVTM 04-03-23).

Equipment

Vinca roseus leaves, glass test tubes, water bath, flame, alcohol.

Reagents

All other chemicals/solutions used in the present study were of analytical grade. Reagents used for the detection of different phytochemical groups were Mayer's regent, Wagner's reagent, Hager's reagent, Dragendorff's reagent, tannic acid reagent, Molisch's reagent, Fehling's reagent, Benedict's reagent, vanillin-hydrochloric acid reagent, Wilson's reagent, Millon's reagent, and biuret reagent.

Phytochemical screening

Phytochemical screening of *V. roseus* extracts for the presence of active principal groups, including alkaloids, saponins, phenols, tannins, cardiac glycosides and flavonoids was carried out. All tests were performed as triplicates and given marks from (-) to (+++) according to the strength of the color or precipitate that appeared.

Detection of alkaloids

About one g of the chopped leaves was extracted with 10 mL of diluted 1% HCl, with aid of heat; and then the mixture was filtered (Lahare et al., 2021), two mL of the filtrate were treated, separately, with a few drops of Mayer's, Wagner's, Hager's, Dragendorff's, or tannic acid 10% reagents in clean, dry test tubes. With those detecting reagents, respectively, cream-colored, brown, yellow, deep yellow, and buffy precipitation was determined to be an indicative of an alkaloidal substance's presence.

Detection of glycosides/carbohydrates

30 mL of distilled water and 5 grammes of the chopped leaves were boiled together. The watery extract was then decanted, and the supernatant was examined for the presence of a carbohydrate and/or a glycosidal compound in accordance with the conventional process described according to (Riaz et al., 2021), the following Molisch's test, with minimal modifications: Two mL of the tested water filtrate were combined with 0.2 mL of 10% -naphthol alcoholic solution in a clean, dry test tube. Next, 2 mL of sulphuric acid was added to the test tube's interior wall, and the presence of a bluish violet zone indicated the presence of glycosides and/or carbohydrates.

Fehling's test: The concentrated extract and Fehling's reagent were combined equally, then heated for a short while. Precipitation that changes colour, from yellow to brown, is a sign that particular glycone is present, either as a component of glycosides and/or carbs or not.

Benedict's test: In a clean, dry test tube, equal portions of the concentrated extract and Benedict's reagent were combined and heated for a short period of time. Any degree of colour change in precipitation, from yellow to red-brown, indicates the presence of reducing sugars, whether they are part of the glycosides and/or carbs or not.to differentiate if the constituent is a glycoside or carbohydrate; Fehling's and Benedict's tests were repeated twice, the first with aqueous extract of the seed, while the second with the acidulated (H_2SO_4) extract (that was then neutralized by 5% NaOH solution); stronger color in the second trial indicates a glycoside in general. Special tests to detect special glycoside categories were performed as follows.

Baljet's test: One millilitre of the concentrated extract was mixed with a few drops of a sodium picrate solution. Cardiovascular glycosides are present when there is an orange discoloration.

The test of Legal 100 mg of the chopped leaves were mixed with 2 mL of the pyridine solution, a few drops of the nitro-prusside solution, and finally a few drops of the 20% NaOH solution. A cardiac glycoside is identified by its rich red tint. (Evans & GE, 2002).

Killer-Killiani test: Five mL (100 mg/mL in methanol) of the chopped leaves extract were put to a clean, dry test tube along with two mL of glacial acetic acid and a drop of ferric chloride solution. In order to create a zone above the prepared mixture, one mL of concentrated sulfuric acid was added. A bluish-brown ring that forms at the contact, which is typical for cardiac glycosides testing, denotes the presence of deoxy-sugar.

Schonteten's Reaction (Borax test): Borax was added to 2 mL of the aqueous leaf extract (1 g/10 mL) and heated until dissolved. A few drops of the solution were added to a test tube that was almost completely filled with water; Anthraquinone glycoside is indicated by a green fluorescence.

Borntrager's test: 6 mL of diluted acid, such as 1% HCl or 1% H2SO4, were boiled with half gm of the chopped leaves before being decanted or filtered. The supernatant/filtrate was then vigorously mixed with 5 mL of benzene and filtered before receiving two mL of a 10% solution of ammonia. Anthraquinone glycosides are present when the contents of the tube exhibit a pink, violet, or red coloration upon vigorous shaking (Evans & Evans, 2002).

Modified Borntrager's test: In order to prepare 0.5 g of the chopped leaves, 5 mL of 5% ferric chloride solution and 5 mL of diluted HCl were added. The mixture was then cooked on a boiling water bath for 5 minutes, cooled, and gently shaken with benzene. A similar volume of diluted ammonia was added once the organic solvent layer was separated. An Anthraquinone glycoside will have a pinkish-red tint in the ammonical layer.

Detection of saponins

Foam (Froth) test: The ability of saponin to produce froth upon shaking and to produce emulsion with oil was used as a test for its detection (Harborne, 1973).

A water bath was used to heat two gm of the chopped leaves in 20 ml of distilled water for five minutes before filtering. Ten ml of the filtrate were combined with five ml of distilled water in a clean, dry 25 cm cylinder and violently shaken to produce foam. To finish the test, three drops of extra virgin olive oil were added to the froth that had developed (if any), violently agitated, and watched for the creation of an emulsion. Emulsion formation and at least a ten cubic ml height of froth that persists for at least ten minutes both indicate the presence of saponin.

Detection of tannins/phenols

About 2 g of the chopped leaves were extracted in 20 mL ethanol (50 %) by heating in water bath for 10 minutes at 70 °C and tested for presence tannins and/or other phenolic compounds in the leaves extract using the following tests (Ramakrishnan, 2004).

Gelatin test: In a clean, dry test tube, equal parts of the extract and 1% gelatin solution in sodium chloride (0.85%) were combined. The development of a white, hazy, or fluffy precipitate suggests that the seed extract contains tannins (generally).

Lead acetate test: 2 mL of the extract were combined with 2 mL of a transparent, 10% lead acetate solution that had been filtered. A large amount of white precipitate is a sign of tannin and/or phenolic chemicals.

Phenazone test: The aqueous leaf extract was combined with 0.5 g of sodium acid phosphate, which was boiled, cooled, and filtered. If there is a tannin in the filtrate, adding phenazone solution (2%) causes a bulky coloured precipitate to develop.

Bromine solution test: The leaf extract (aqueous) and bromine solution were combined in equal parts. While hydrolysable tannins do not produce precipitation, condensed tannins will produce a buff-colored precipitate.

Ferric Chloride test: The presence of gallo- or catecho-tannins (hydrolysable or condensed, respectively) is indicated by the production of a bluish-black or greenish colour when a few drops of FeCl3 solution (1%) are added to an aliquot of 2 mL of the produced extract.

Hydrochloric acid test: Five ml of 1% HCl and one-half gm of chopped leaves were heated for ten minutes to reveal the presence of phlobatannins (Evans & Evans, 2002).

Vanillin test*:* An aliquot of five mL of the alcoholic seed leaves extract (1 g seed/10 mL alcohol) was mixed with two mL of the vanillin-HCl reagent. Gallic acid, a hydrolysable tannin, is indicated by the formation of a red or pink deposit.

Detection of flavonoids

Shinoda's (Cyanidin) test*:* 0.5 ml of 10% HCl and a few mg of magnesium metal turnings were combined with two mL of the 10% ethanolic extract of the cut leaves (1 g/10 mL; w/v). The appearance of flavonoids is indicated by the development of a reddish colour (Evans & Evans, 2002).

Wilson's test: If present in the leaf extract, several flavonoids (5-oxyflavones and 5-oxyflavonoles) with Wilson's reagent acquire a brilliantly yellow colour with yellowish-green fluorescence.

Lead Acetate test: Two mL of the chopped leaves' ethanolic extract were added to a few drops of transparent lead acetate solution (10%) in a clean, dry test tube. Flavonoids are present when a precipitate has a yellow appearance.

Alkaline reagent test: A 10% solution of ammonium hydroxide was added to two mL of the leaves' aqueous extract; the presence of yellow fluorescence indicates the presence of flavonoids.

Detection of resins

About 5 g of the chopped leaves were mixed with 50 mL of 95% ethanol. About 20 minutes were spent heating the mixture in a water bath that was shaking before it was decanted or filtered. When approximately 5 mL of distilled water are added, a precipitate forms, which indicates a resinous content (Harborne, 1973).

Detection of Gums/Mucilages

In a large clean, dry test tube, 1 g of the chopped leaves were dissolved in 10 mL of distilled water. Then, while continuously swirling, 25 mL of 100% alcohol were added gradually. The presence of gums or mucins is indicated by the presence of white or hazy precipitation (Whistler & BeMiller, 1993).

Detection of terpenoids/steroids

The following assays were used to determine whether terpenoids and their derivative steroids were present in *vinca roseus* leaves:

Salkowski's test: Following the careful addition of 3 ml of concentrated H2SO4 to the test tube wall, 100 mg of the chopped leaves were extracted in 2 ml of chloroform. After a few minutes, the lower layer begins to turn crimson, indicating the presence of steroids; as it turns yellow, it indicates the presence of terpenoids (Harborne, 1973)**.**

Libermann-Burchard test: A few drops of acetic anhydride were added to the chloroform extract, and it was then heated. Equal amounts of concentrated H2SO4 were carefully applied to the test tube's inner wall after cooling. Steroids are present when a brown ring forms at the interface and the upper layer turns green; terpenoids are present when a dark red colour forms.

Detection of Fixed oils

Spot (Stain) test: For the presence of fixed oils/fats, petroleum ether or benzene seed extracts were evaluated. A little bit of an extract was pushed between the filter paper's folds. The presence of oil stains indicates the presence of solidified oil or fat (Kokate, 2008).

Saponification test: A small amount of the leaves extract was mixed with a few drops of 0.5 N alcoholic KOH solution and a drop of ph-ph. For half an hour, the mixture was heated in a water bath. When soap forms or the alkali partially neutralizes, fixed oil is present (Kokate, 2008).

Detection of Proteins/Amino acids

In a clean, dry test tube with Whatmann No. 1 filter paper, 1 g of the chopped leaves were combined with 10 ml of distilled water. After that, assays for proteins and/or free amino acids were performed on the filtrate. Including:

Millon's test: Two mL of the produced leaves filtrate were mixed with a few drops of Millon's reagent. Proteins are present when a buffy white precipitate that turns crimson when heated. (Rasch & SWIFT, 1960).

Biuret test: A small amount of the Biuret reagent was added to an aliquot of the 2 mL filtrate (see above). When light blue turns violet or mauve, it means that there are peptide linkages or proteins present. (Harborne, 1998).

Data presentation and analysis

Every qualitative test for each active group has been done in triplicate. The positive result has been judged from weak to strong denote by ± to 3+. Negative results indicated as (-).

Results and Discussion

Phytochemical screening revealed presence of alkaloid-, glycoside, carbohydrate, cardiac and anthraquinones glycoside(s), Saponin, tannins, phenols, gallo- or catecho-tannins (hydrolysable or condensed), respectively, flavonoid-, resin-, steroid-, phlobatannins, Fixed oil-, and Protein compounds (Tables 1-3). In contrast, absence of some active groups includes, terpenoids, and gums/mucilage was observed (Table 3).

The science of employing herbal medicines to treat disease is known as phytotherapy or herbal medicine. Therefore, it covers all therapeutic plants, from those with strong effects like Digitalis and Belladonna to those with extremely benign effects like chamomile, mint, and many more (Meuss, 2000). Folk medicine was formerly the only means of treating a variety of illnesses before the modern medical system was created, but a sizable portion of the global population continues to employ these methods now (Pranskuniene et al., 2022). Ayurvedic medicine in India, Kampo medicine in Japan, and Chinese herbalism in China are just a few examples of developing nations that never completely abandoned medical herbalism. In other countries, like Germany and France, medical herbalism continued to coexist with modern pharmacology, albeit at a decreasing level. Many of today's synthetic drugs originated from the plant kingdom, and only about 200 years ago, our pharmacopoeia was dominated by herbal medicines (Ernst, 2005). Following its suppression throughout the colonial era, traditional medicine (TM) has gained popularity in Africa during the past 20 years. This is primarily due to the ineffectiveness of conventional medicine (OM) in treating emerging diseases like HIV/AIDS, cancer, diabetes, hypertension, and the COVID-19 virus. These factors are also exacerbated by a strong cultural belief in the efficacy of HM, the high cost of OM, and limited access to healthcare facilities. According to the WHO, 80% of African populations rely on TM to meet their basic medical needs (Leke et al., 2022). The most popular traditional medications are herbal ones. The most significant difficulties are to the quality, safety, and efficacy of herbal medications (Organization, 2005). Of the novel molecular entities (NMEs) from natural sources that the Food and Drug Administration (FDA) has approved, 25% come from botanical natural goods. The first NME generated from plants was morphine, which was authorized for usage in 1827. Since then, numerous medications derived from plants have been found. For instance, the essential broad-spectrum cancer chemotherapy medications used in the clinic are the indole alkaloids vinblastine and vincristine, which were derived from *Vinca roseus* (Li & Weng, 2017).

Thomas et al. (2009) *Vinca roseus* is said to have originated in Madagascar, sizable island off the coast of Africa, and is suited to slopes that are hot, dry, or windy, bright sunlight, well-drained soil, and extended summer heat. Vinca is adapted to a low fertility environment since the soil fertility is weak. As nutrient scavengers, their roots cannot thrive in the artificially high fertility levels present in the majority of greenhouses. According to prior research, the active principle components of vinca roseus vary depending on the kind of soil. Despite the fact that vinca roseus' photochemical screening has been the subject of numerous prior studies, the current phytochemical analyses are based on the plant's various active principal components as they relate to various soils.

Vinca roseus was found to have a variety of beneficial effects in the current investigation, including an antiviral effect against the herpes simplex virus (type I) and probable inhibition of the malaria-causing falcipain-2 protozoan parasite (Naeem et al., 2017), Anticancer properties, Anti-diabetic activity (Vidhyalakshmi & Gopalan), Antagonistic to diarrheal property and Hypolipidimic effect (Ali et al., 2021), Antibacterial activities (Mukunthan et al., 2011), Wound healing property and Hypolipidimic activity (Paarakh et al., 2019), Anti-ulcer property and particularly beneficial in the case of Alzheimer's disease (Jadhav et al., 2023) action against colorectal cancer (Ramadan and colleagues, 2023 unpublished data).

In current study we found that phytochemical screening of *Vinca roseus* leaves extract revealed that: Presence of alkaloids, flavonoids, glycoside (Anthraquinone) are in consistent with phytochemical analysis these results are consistant with those (Obaid et al., 2019), who reported that detection of chemical compounds in the *Vinca roseus* extract showed that they contained (alkaloids, terpenes, flavonoids and glycosides).

About 20% of plant species contain alkaloids, which are mostly produced from amino acids. The anti-neoplastic drugs vinblastine and vincristine, the analgesics morphine and codeine, the anti-hypertensive ajmalicine and serpentine, and the anti-arrhythmic ajmaline are all examples of plant-derived alkaloids that are now used in medicine (Almagro et al., 2015).

Plant pigments called flavonoids are created from phenylalanine. Many bacterial strains are inhibited or killed by flavonoids. One to two gm of flavonoids should be consumed daily with normal meals, particularly fruit and vegetables. Pure flavonoids are being used more frequently by licensed modern doctors to treat a variety of serious common diseases because they block key viral enzymes including reverse transcriptase and protease (Havsteen, 2002) (Table 1).

Natural anthraquinones are characterised by their vast range of biological activity, diverse structural makeup, and low toxicity. They have bactericidal, astringent, purgative, anti-inflammatory, mild antitumor, and effects on inflammation (Thaher, 2022) (Table1).

Cardiac glycoside(s) existence is in consistent with phytochemical analysis these results are not consistant with those (Farnsworth et al., 1962), who claimed that alkaloids, saponins, unsaturated sterols, organic acids, and phenols were discovered during phytochemical screening. No evidence of tannins, flavanols, or cardiac glycosides was found, but these results are consistant with those (Lahare et al., 2021), who claimed that a phytochemical examination revealed the presence of alkaloids, cardiac glycosides. (Table1). The class of pharmaceuticals known as cardiac glycosides includes well-known medications including digoxin, digitoxin, and ouabain. It is generally known that they continue to be effective in the treatment of congestive heart failure and as anti-arrhythmic medications, and this relates to the management of human cancer (Newman et al., 2008) as shown in (Table1).

Table 1. Results of Alkaloids, Glycosides/ Carbohydrates and special Glycosides groups' detection of the leaves extract of vinca roseus.

Active group	Test	Result
Alkaloids	Mayer's	+++
	Wagner's	+++
	Hager's	+
	Dragendorff's	-
	Tannic acid 10%	-
Glycosides/Carbohydrates	Molisch's	+++
	Fehling's	+++
	Benedict's	+++
Cardiac glycosides	Baljet's	+++
	Kileer-Killiani	-
Anthraquinone glycosides	Borntrager's	+++

Carbohydrate existence is in consistent with phytochemical analysis these results are consistant with those (Riaz et al., 2021) they calculated that the qualitative phytochemical examination revealed the presence of proteins, carbohydrates, tannins, anthraquinones, glycosides, flavonoids, and terpenoids. The primary source of energy in the human diet is carbohydrate. Direct oxidation in various tissues, glycogen production (in the liver and muscles), and hepatic de novo lipogenesis are the three metabolic processes that dispose of food carbs (Jequier, 1994), as shown in (Table1).

Existence of phenolic compounds is compatible with phytochemical screening these results are consistent with those of (Jayaraj et al., 2019), He stated that these phytochemicals contain phenolic compounds, aminoacids, saponins, aromatic acids, terpenoids, tannins, alkaloids, and flavonoids (Huang et al., 2009) claimed that natural phenolic chemicals are crucial for both preventing and treating cancer. Medicinal and nutritional plants include a variety of phenolic chemicals, such as phenolic acids, flavonoids, tannins, stilbenes, curcuminoids, coumarins, lignans, and quinones, according to (Table 2).

Tannins detection resembles phytochemical analysis, and these outcomes are comparable to those (Jayaraj et al., 2019) They claimed that Vinca flower and leaf preparations had phytochemical components that were measured. Total phenolic, tannin, flavonoid, alkaloid, and saponin measurements. In addition to their numerous other effects, tannins include bactericidal, anticancer, and anti-inflammatory properties, which bring their pharmacology into sharper light (Pizzi, 2021), as shown in (Table 2).

Table 2. Results of Saponin, Tannin / phenols, special Tannins and Flavonoids groups' detection of the leaves extract of *vinca roseus.*

Active group	Test	Result
Saponin	Froth	+++
Tannin	Gelatin	+++
	Lead acetate	+++
	$FeCl_3$ test	+++
Phlobatannin	Hydrochloric acid	++
Gallic acid	Vanilin test	-
Flavonoids	Shinoda's (Cyanidin) test	-
	Wilson's	+
	Lead acetate	+++
	Alkaline reagent	+++

Presence of Saponin is compatible with phytochemical screening these results are consistant with those (Riaz et al., 2021) they calculated that the qualitative phytochemical examination revealed the presence of tannins, proteins, carbohydrates, flavonoids, terpenoids, glycosides, anthraquinone, and saponin. A type of glycosidic chemical known as saponins and related substances is essential to the food, agricultural, and pharmaceutical industries. They offer great therapeutic promise in the areas of hypolipidemia, hypoglycemia, anti-asthma, antioxidant, anti-hypertensive, and anti-microbial action, in addition to a few adverse effects like cytotoxicity. (Sharma et al., 2023), as shown in (Table 2). Absence of terpenoids is similar with phytochemical analysis these results are not consistent with those (Riaz et al., 2021), who predicted that terpenoids were present in the qualitative phytochemical study, but their results are consistent with those (Singh et al., 2014) They claimed that terpenoids were absent from the qualitative examination of vinca flower extracts. According to (Table 3).

Absence of Steroid these results are consistent with those of (Singh et al., 2014) who said that Qualitative analysis of Vinca flower extracts not contain Steroid, according to (Table 3).

Protein detection is in consistent with phytochemical analysis these results are consistant with those of (Riaz et al., 2021) found that the presence of flavonoids, Anthraquinone, and proteins was shown by the qualitative phytochemical study of Vinca roseus. Because they are made using molecular tools from biotechnology, proteins are employed as medicines. For this specific value, enter the features of the food supply, antimicrobials, biomarkers, emulsifiers, and surfactants, as well as hormoneoneses, enzymes, and vitamin synthesis. This importance is connected to the specific protein composition (Nehete et al., 2013). As shown in (Table 3).

Resins existence is actually detected in this phytochemical analysis this result wasn't be discussed in previous literatures (Ramadan and colleagues 2023 unpublished data).

Natural resins have been valued for their antiseptic and antibacterial qualities since the dawn of human civilization. Resins are made up of intricate mixtures of resin acids, alcohols, phenols, and their esters. The resins associated with gums, volatile oils, and gums are referred to as oleoresins, gum-resins, and oleo-gum-resins, respectively (Shuaib et al., 2013) As shown in (Table3).

Fixed oils and fats detection is in consistent with phytochemical analysis these results are consistant with those (Aslam et al., 2010) reported that the fatty acids palmitic acid, oleic acid, and linoleic acid are present in vinca roseus. According to (Table 3). Free fatty acids have long been known to have antibacterial properties, and they can directly kill or stunt the growth of bacteria, fungus, and other organisms by influencing a variety of biological targets, such as the cell membrane and its constituent parts (P Desbois, 2012).

Absence of gums and mucilage is recorded in this study, these results are consistant with those of (Kabesh et al., 2015), as shown in (Table 3).

Table 3. Results of Resins, Gums/Mucilages, Terpenoids/Steroids, Oils/Fats and Protein group's detection of the leaves extract of *vinca roseus.*

Active group	Test	Result
Resins	Distilled water	++
Gums/Mucilages	Absolute alcohol	-
Terpenoids/Steroids	Salkowski's test	-
	Libermann-Burchard	-
Protein	Millon's	++
	Biuret	+++
Oils/Fats	Saponification	+++

Conclusion

Vinca roseus leaves extract has a high concentration of alkaloids, glycosides, glucose, cardiac glycosides, saponins, tannins, and phenols as well as flavonoids, resins, steroids, fixed oils, and protein components, according to phytochemical screening. This finding will cause vinca roseus leaf extract to be looked at as a potential agent with nutritional origins.

Conflict of Interest

The author hereby declares no conflict of interest.

Consent for publication

The author declares that the work has consent for publication.

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How to cite this article

Ramadan, Y. A., Zhran, Y. O., Abdelfattah, A. A. and El-Mahmoudy, A. M. (2023). Preliminary phytochemical screening of *Vinca roseus* leaves. *Science Archives*, Vol. *4*(2), 154-161. **https://doi.org/10.47587/SA.2023.4213**