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Phytopharmacognostic Profile and Antioxidant Potential of *Rhododendron Campanulatum & Jovellana Punctata*

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Abstract: The antioxidant and phytochemistry of Rhododendron Campanulatum and Jovellana punctata leaf methanolic extracts were examined in this work. This study's outcomes varied per plant organ. Phenolic compounds in leaf and stem extracts linked with antioxidant and phytochemical activity, while leaf extract was less active. However, if the local population relies on it for its biological features, it should be cultivated to prevent its disappearance. It would also be interesting to explore the diversity in extract compositions and biological activities of plants cultivated in different locations and seasons, as culture conditions can greatly affect secondary metabolite formation. A preliminary physico-phytochemical investigation of Rhododendron Campanulatum and Jovellana punctata (L.) Leaves found macroscopic, other physical values and parameters will assist identify the plant species, and phytochemical screening will detect secondary metabolites. Microscopy is used to authenticate crude pharmaceuticals, examine powdered drugs, and determine the medicinal and pharmacological value of plants. Rhododendron Campanulatum and Jovellana punctata Leaves have several therapeutic uses and aid in identification, authenticity, and standardization. Research must include phytochemical and pharmacological aspects. Drug development would be easier with more research.

Keywords: Herbal Plants, Macroscopic, Microscopic, therapeutics

1. Introduction

People have been searching for cures for a wide variety of diseases ever since ancient times, and this search has only been more intense as medical science and technological advancements have developed. Enhancement of pharmaceutical, non-pharmacopoeial, and synthetic medications can be achieved through the incorporation of components derived from medicinal plants into the manufacturing process. Above and beyond that, these plants have played a crucial part in the development of human civilizations worldwide [1]. India has a history of 5,000 years of practicing ayurvedic medicine, which is based on the use of medicinal plants. Utilising food and herbal therapies that are tailored to the individual's body, conscience, and spirit in order to promote health and healing [2], this approach is becoming increasingly popular. Because traditional medicine has been practiced for such a long time, there is a considerable body of evidence that supports the efficacy of traditional medicine (TM).[3] Traditional medicine (TM) is defined by the World Health Organisation (WHO) as the body of knowledge that is utilised for the primary purpose of providing care for both physical and mental health. This includes, but is

not limited to, the prevention, diagnosis, improvement, and treatment of illness, as well as any and all practices that are founded on indigenous beliefs, theories, and experiences.[4] Herbs used for therapeutic purposes formed the core resource basis of the Traditional Medicine (TM) after the introduction of modern medicine. Utilisation of medicinal plants continued to be an essential component of human health care. The introduction of modern medicine was the primary factor that led to the rapid decline of traditional medicine, particularly in countries that had already been industrialised. On the other hand, eighty percent of the population in underdeveloped countries relied on medicinal plants to meet their requirements for health care[5]. During the turn of the century, countries that were already industrialised as well as those that were still developing began to demonstrate a revived interest in traditional medicine[6]. Plant-based medicine has become increasingly popular as a result of the rising body of information that links the use of modern medicine, which includes antibiotics, steroids, and other synthetic medications, to major health hazards[7]. Additionally, the risks connected with the overzealous administration of these treatments have also contributed to this trend. As a result of the growing popularity of plant-based therapies, there is a tremendous expansion in the demand for plant-based medications, nutraceuticals, functional foods, and even cosmetics among consumers all over the world[8]. Since the dawn of time, people have been experimenting with different herbal treatments specifically for the treatment of pain and illness. It has been sixty thousand years since the invention of a Sumerian clay slab, which was a system for validating the employment of restorative plants in the production of medication. Since then, medicinal plants have been utilised in considerable quantities. Around fifty percent of medications that are manufactured today are derived from natural sources [9].

In both developed and developing countries, herbal remedies are frequently utilised for the purpose of providing medical care.[10] Several of them pose a threat to your health, while others have no impact at all or may have the opposite effect when coupled with other medications [11]. Herbs are mentioned in the Vedas, which are considered to be India's most sacred literature. Herbs are found in abundance throughout the country. There are a multitude of spices that have their roots in India, including nutmeg, cinnamon, clove, and many more [12]. During the latter half of the 1800s and the early 1900s, there was a potentially catastrophic risk that medicinal plants would be completely eliminated from the practice of conventional medicine.

Many of the authors' poorly conceived pharmaceuticals go through obvious changes as a result of the enzyme-disrupting activity that takes place during the drying phase of herbal medicines; to put it another way, the drying mode is what determines the therapeutic benefits of medicinal plants [13]. Beginning in the 1800s, pure alkaloids and glycosides began to take the place of their original therapeutic sources [14]. Despite the fact that it was previously believed that pure alkaloids had a shorter half-life, it was quickly discovered that alkaloid medications actually had an effect that was more complete and lasted for a longer period of time. In the early 1900s, it was suggested that certain fresh herbal medicinal preparations, particularly those with therapeutic components that are readily damaged, could be used as therapies for stabilisation. The circumstances surrounding the development and cultivation of therapeutic plants were also the focus of a significant amount of research [15]. It is possible for us to collect a broad variety of plants that are beneficial to us, whether we are using them for culinary purposes, medical purposes, aesthetic purposes, or for harvesting. It is [16-19]. When it comes to the management of health as well as the prevention, diagnosis, enhancement, or treatment of illness (both mental and physical), the term "traditional medicine" refers to the collection of information, practices, and protocols that originate from the principles, values, and relationships of many communities.[20]. The term "alternative medicine" or "supplementary medicine" is frequently used to refer to traditional medical practices that have been adopted by a population that is not of the originating culture. According to the numbers provided by the World Health Organisation (WHO), conventional herbs in China, for instance, account for thirty to fifty percent of the overall medicinal intake [21]. This suggests that ethnomedicine is more prevalent in developed nations.

2. Material & Methods

Plant collection and preparation of their extract

The traditional practitioners of the Forest area Nainital, Uttarakhand, were surveyed, interviewed, and interviewed again to gather Rhododendron Campanulatum and Jovellana punctata leaves. Meanwhile, a botanist from the Central Department of Botany at the Indian Council of Agricultural Research (ICAR) in New Delhi verified the authenticity of the Rhododendron plant herbarium. Before being stored in a cool, dry place until further experimentation, all of the plants that were collected were washed, shade dried, and pulverised. For every powdered sample, the methanol extract was made using the cold percolation method. A rotary evaporator was used to concentrate the filtrate methanol extracts of all the plants. The concentrated substance was

subsequently dried in a 35 °C oven until all of the solvent had evaporated. As a last step, it was sealed in a container and kept in the refrigerator at 4 °C until needed.

Qualitative phytochemical analysis

A conventional procedure was utilised as the basis for the method that was employed for phytochemical screening, with minor modifications taken into account. The colour reaction with various reagents allowed for the identification of the various phytochemicals that were present in the various plant extracts by using the colour reaction[22]

Preparation of samples

In accordance with the instructions provided by, the leaves of both plants were prepared in preparation for the measurements. Tween-80, bavistin, and water that has been distilled twice are the components that are utilised in the manufacturing of this product. In order to do the same thing, the following actions need to be taken: The clean pieces of the plant were transferred to a tray that was adjacent to it. Secondly, a solution of tween-80 was utilised in order to clean the different plant portions. The plant parts that had been cleaned were transferred to the bavistin solution. [22] Using water that has been double-distilled for the final rinse is covered in Section IV.After the leaves had been dried in an incubator at a temperature that was lower than 40 degrees Celsius for the duration of the night, they were subsequently milled into a fine powder.

Plant Extraction

The soxhlet method was the next technique that we utilised in order to extract the greatest possible quantity of plant material from Rhododendron campanulatum and Jovellana punctata. Through the use of the Soxhlet method, organic compounds can be extracted from solid materials. The method includes a series of repeated solvent extractions that are carried out with the assistance of a specific tool known as a Soxhlet extractor. Through the process of boiling the solvent in the flask, vapour is able to condense in the condenser, and this vapour then drips into the thimble that is holding the sample. It is because of this that the solvent is able to dissolve the solid and release the chemical that is specifically required. When the extraction process is complete, the final step is to transfer the condensed solvent vapour that has been collected back into the flask.Depending on the kind of sample that is being obtained, the amount of time that is necessary for the extraction process might range anywhere from three to four days to even even one to three weeks[23].

The procedure for the extraction process are as follows:

- The leaves had been treated in advance.
  Following that, twenty grammes of dried leaves were rolled into a ball, placed inside a piece of muslin, and stapled shut.
- Finally, a piece of muslin was sewn shut. When putting together the soxhlet assembly, the instructions were always followed to the letter.
- The thimble was then positioned within the folded muslin cloth once it had been folded. After that, a funnel was used to move 400 millilitres of pure methanol from the top of the condenser to the thimble.
- In order to keep the temperature of the Soxhlet apparatus at fifty degrees, a heating mantle was utilised.
- the process of extracting the plants continued. When the colour inside the thimble went from a dark green to a colourless state, the extraction process was terminated.

Determination of percentage yield (%)

The percentage yield of the extract was calculated by first determining the weight of the dried extract (a) and the initial sample material (b), and then applying the calculation that is presented below:

$$\text{Percentage yield (\%)} = a/b \times 100$$

Polyphenol qualitative estimation

In order to conduct qualitative and quantitative analyses of the plant samples, a variety of methods and procedures were utilised. Using the requirements of the test, the plant samples were measured and weighed in accordance with specifications.

Tests for Carbohydrate Molisch's Reagent Use:

- Add 3 ml of the test extract to a squeeze bottle.
  section
- Add a small amount of the alpha-naphthol solution to the test tube.
- Thoroughly combine everything in the test tube.

- While being cautious not to splash or spill, add a few drops of strong sulfuric acid to the mixture.
- Keep an eye out for the creation of a violet ring at the point where the two liquids meet.
- Take into consideration whether the violet ring is there or not while interpreting the data.

Test for Alkaloid Using Mayer's Reagent

i. Transfer 2 millilitres of the solution extract to a test tube.
ii. fill the test tube with 2 millilitres of 2% hydrochloric acid.
iii. Thoroughly combine everything in the test tube.
iv. Finally, dilute the solution with Mayer's reagent.
v. Keep an eye on the mixture to see whether a reddish-brown precipitate forms.
vi. With the presence of alkaloids, a reddish-brown precipitate will form in the liquid extract.
vii. Apply this logic to the findings

Tests for Flavonoids

i. Add 2 millilitres of the test extract to a test tube.
ii. Several drops of the NaOH solution should be added to the test tube.
iii. Combine all of the ingredients in the test tube.
iv. Notice that the solution has turned a bright yellow.
v. To the solution, add a few drops of diluted hydrochloric acid.
vi. Re-mix the contents of the test tube until they are well combined.
vii. Keep an eye on the mixture to see if the yellow hue fades and a clear, colourless liquid forms.
viii. Keep an eye out for a colourless solution..

Tests for Saponins

- place one millilitre of the test extract into a test tube.
  The second step is to take a test tube and put one drop of a lead acetate solution that is 1%. Use the test tube to thoroughly mix all of the ingredients together.
  you should be on the lookout for a precipitate that is bright white and forms in the mixture.
- The formation of a strong white precipitate when the test extract is tested provides evidence that the extract contains saponins.
- Always be on the lookout for the precipitate, and use it to help you make sense of the findings and decisions.

Test for Sterols

- Pour two millilitres of the test extract into a test tube and fill it entirely.
  Pour just two millilitres of sulfuric acid that is pure into the test tube.
- completely combine the contents of the test tube with one another.
  keep an eye on the mixture to see if a red precipitate forms.
- Take note of whether or not the red precipitate is present, and then interpret the results in accordance with this information.
- The production of a red precipitate is evidence that sterols are present in the extract that was selected for scientific analysis.

Tests for Tannins

- millilitre of the test extract should be placed in a test tube.
- Pour one millilitre of a ferric chloride solution that is three percent into the test tube.
  Swirl the contents of the test tube in a gentle manner to ensure that they are properly combined.
- Take note of the colour of the composite substance. Look for the appearance of a colour that is in between brown and green.
- If the extract has a colour that is described as brownish green, this is an indication that tannins are present in the extract.
- If there is no change in colour, this indicates that the extract does not contain any tannins.

Quantitative polyphenol estimation

Total Carbohydrate Content Calculation

A plant extract was subjected to spectrophotometry in conjunction with the anthrone procedure in order to determine the total amount of carbohydrates present in. Within the framework of this methodology, glucose was utilised as the standard, and the total carbohydrate content was reported in milligrammes of glucose equivalent per gramme of sample (mg GE/g sample). A comparison was made between the absorbance of the sample and that of the glucose standard in order to carry out this calculation. The total carbohydrate content of the sample was determined and expressed as glucose equivalents through the utilisation of this method. This enables a direct comparison to be made with standards that are based on glucose.

Total Protein Content Determination [24-25]

In order to ascertain the total amount of protein that was present in the sample, the Lowry technique was utilised. In this technique, one millilitre of the sample was mixed with four millilitres of liquid alkaline copper reagent, and the mixture was then let to stand for twenty minutes. Following this, the mixture was incubated in the dark at 37 degrees Celsius for roughly fifteen minutes with 0.5 millilitres of Folin's phenol reagent mixed in. The treatment of standard solutions that contained BSA at varying concentrations was carried out in a manner that was comparable. A spectrophotometer was used to determine the blue colour that was produced at a wavelength of 750 nm. Milligrammes of protein per gramme of tissue was the unit of measurement used to express the total amount of protein present in the sample. Because of its sensitivity, specificity, and compatibility with a wide range of sample types, this approach is widely utilised for the purpose of protein quantification. As a result, it is a dependable and often utilised assay.

Complete Phenolic Content (TPC) Determination [26-27]

The Folin-Ciocalteu technique, which is a spectrophotometric test, was utilised in order to ascertain the total phenolic content (TPC) of the extract. For each gramme of material, the total phenolic content (TPC) was determined using milligrammes of the equivalent of gallic acid (GAE). For the purpose of establishing a reference for comparing the phenolic content of the extract, gallic acid was used as a standard in the experiment. The straightforwardness, sensitivity, and accuracy of this approach have lead to its widespread application in the process of determining the phenolic content of substances. This technique is frequently utilised for the purpose of determining the phenolic composition of a wide range of biological materials, which may include plant extracts and food products.

Complete Flavonoid Content (TFC) Determination [28]

For the purpose of determining the total flavonoid concentration (TFC) of the extract, the aluminium chloride technique, which is becoming an increasingly more used spectrophotometric assay, was utilised. For the purpose of comparing the flavonoid content of the extract, the well-known flavonoid component quercetin was used as a standard. Using milligrammes per the equivalent of quercetin (QE) per gramme of material, the total flavonoid content (TFC) was determined. Due to the fact that it is straightforward, sensitive, and reliable in terms of producing reproducible data, this technique is frequently utilised for the purpose of quantifying flavonoids in plant extracts and agricultural products.

Antioxidant Activity [29-30]

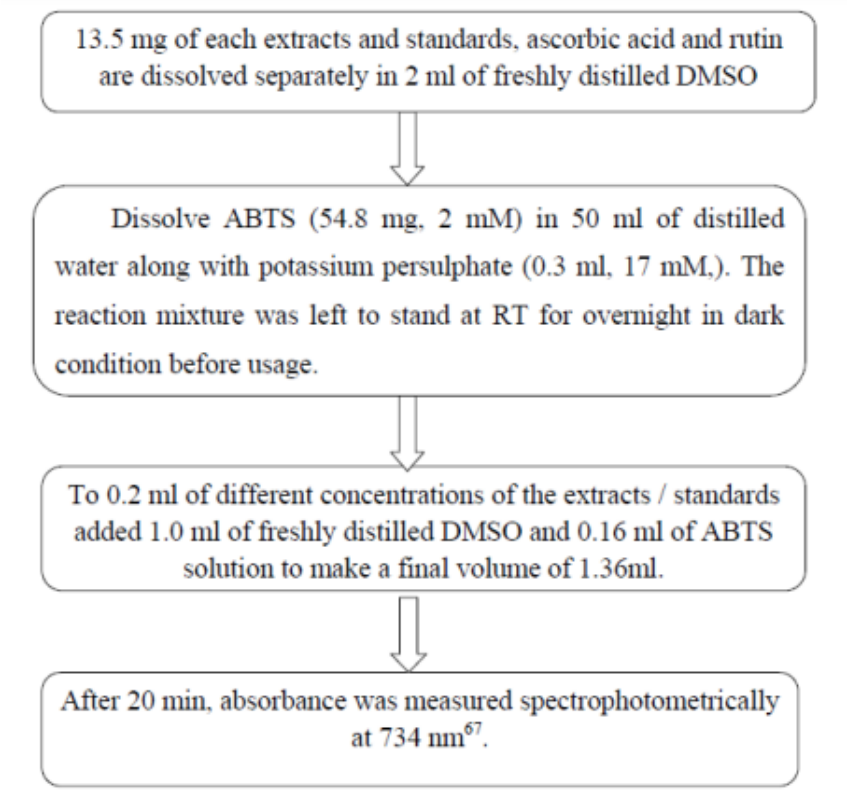
The concept of inhibitory approach serves as the foundation for the in vitro evaluation methodology. Following the addition of the prepared sample to the free radical system, the level of inhibition of the free radical process is measured, and the level of inhibition that is discovered is determined by the antioxidant property of the sample that is being considered for testing.

It is important to note that the evaluation approach varies depending on the following conditions: Capacity for reproducibility throughout the generation stage. Based on the free radical that is generated through the process. Since the beginning of time, people have been looking for treatments for a wide range of illnesses. This has been going on because of the progression of time and the emergence of new ailments. In the manufacturing of pharmacopoeial, non-pharmacopoeial, and synthetic pharmaceuticals, the utilisation of components originating from medicinal plants is beneficial to all three types of medication production. Furthermore, these plants have played an essential role in the development of human cultures all across the world [23]. Within the framework of Ayurvedic medicine, medicinal herbs have been utilised in India for the past five thousand years. Diet and herbal remedies that are customised in terms of the body, conscience, and soul of the individual are utilised in this method for the purpose of disease prevention and recovery [24].

The fact that traditional medicine (TM) has been practiced for such a much longer period of time and is therefore supported by evidence makes it an extremely important resource. It is used extensively in developing countries for primary health care, but in recent years, it has also garnered an increasing amount of interest in developed countries. This is for three reasons: 1) as an alternative to expensive medicines for preventative and promotional health care; 2) for disease conditions that are not adequately treated by modern drugs; and 3) for diseases that are not life-threatening and have a lower incidence of side effects reported than with modern drugs.

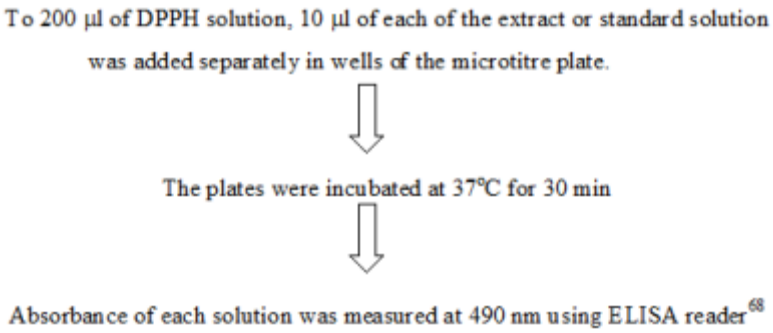
Scavenging of 2-2'-azino bis (3-ethylbenzothiazoline sulphonic acid) ABTS [33]

The test known as 2-2'-azino-bis (3-ethylbenzothiazoline sulphonic acid) is a unique approach that utilises sudden radicals and is utilised for the evaluation of complexed antioxidant solutions such as extracts of plants. Due to the fact that it can be utilised in a wide variety of pH ranges, its employment in the research of the pharmacy field in order to investigate the activity of antioxidant properties is the most prominent sector.



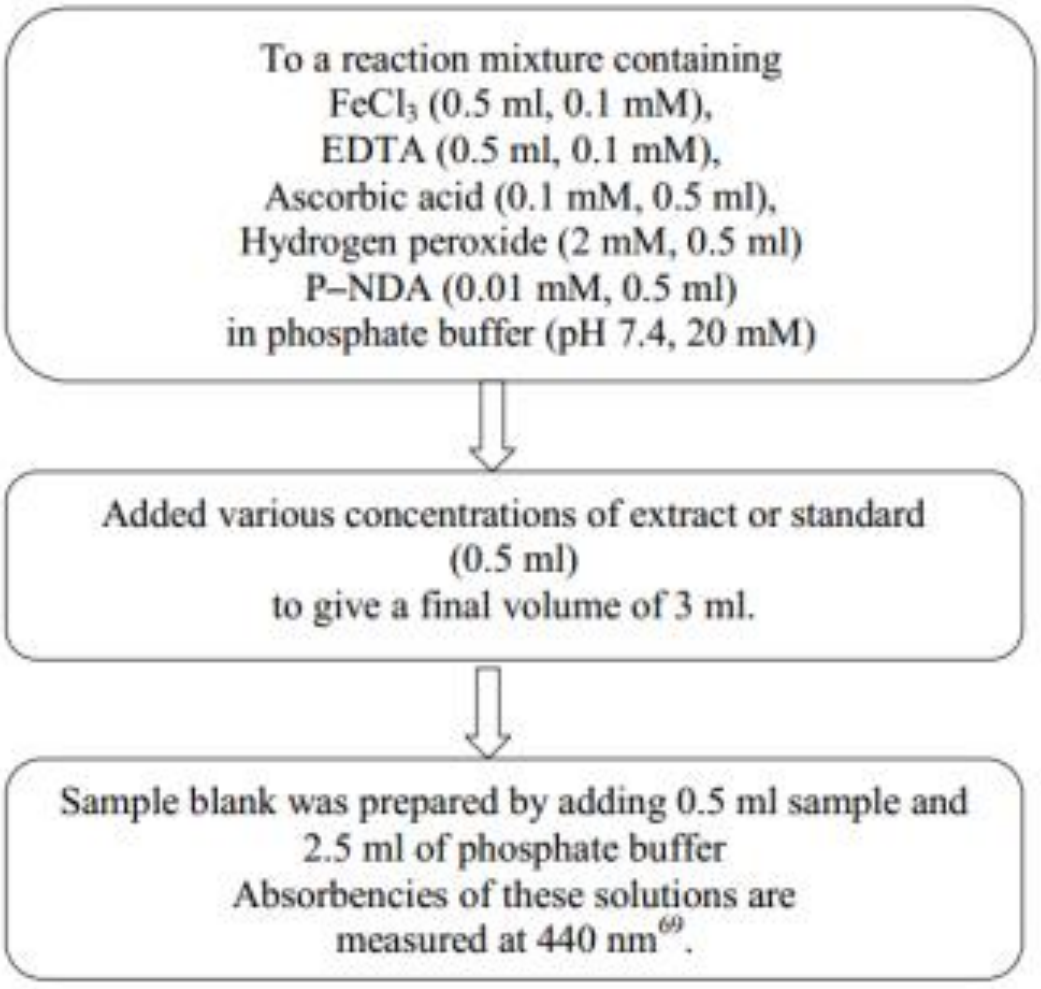
Evaluation of 2-2-diphenyl picrylhydrazyl (DPPH) compound

In the process of reacting with H donors, the compound known as 2-2-diphenyl picrylhydrazyl (DPPH) passes through a reduction stage, which ultimately results in the production of a valuable hydrazine molecule. As a result of the modifications made to hydrazine, the colour shifts from purple to a yellowish hue. This is due to the fact that the radical of DPPH at its beginning is a purple shade, but after being reduced, it transforms into a yellow tint. The discoloration evaluation is another name for this particular experiment. It is determined by incorporating an anti-oxidant chemical into a solution of 2, 2-diphenyl-1-picrylhydrazyl in either C2H5OH or CH3OH, and then measuring the reduction in light absorbency that occurs as a consequence of this addition at a wavelength of 490 nanometers[34]



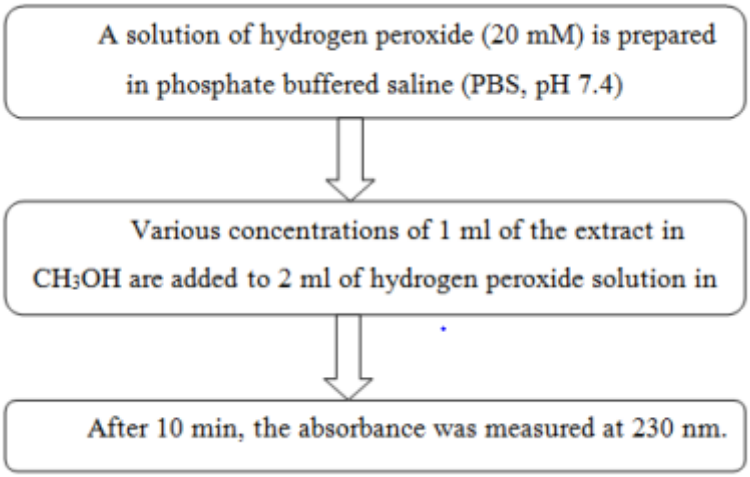
Hydroxyl radical scavenging of by p-NDA technique

For the purpose of determining the amount of hydroxyl radical, the inhibition of p-nitroso diamine bleaching69 method is utilised. As a result of the fenton treatment, which involves the formation of hydroxyl radicals through a reaction between H202 and Fe-EDTA compounds in the presence of an acid such as ascorbic acid, the compound that is produced through the reaction that is referred to as the fenton reaction can be bleached. The ferrous iron-ethylene di-amine tetra adipic acid complex undergoes a reaction with hydrogen peroxide in the presence of ascorbic acid in order to produce a hydroxyl compound. The hydroxyl product that is produced will be responsible for the purposeful decolorization of the p-nitroso diamine. Within the context of this reaction, the OH radical scavenger is responsible for determining the scavenging functions by inhibiting bleaching. Nevertheless, the proportion of scavenging is assessed by absorbing the wavelength at 440 nanometers. Here is a rundown of the steps involved in the process:



H2O2 Scavenging [35]

Several enzymes that are oxidase-based enable the production of hydrogen peroxide in living organisms. In addition, it has been discovered that the formation of hydroxyl ions from hydrogen peroxide (H2O2) can occur in either an alkaline or an acidic media, and that the hydroxyl ions that are produced are hazardous to the functioning of biological systems. Within the context of this procedure, the scavenging is carried out using H2O2, and the spectrophotometric evaluation of the loss of H2O2 is carried out within the range of 230 nanometers Seventy.The order of the process is presented in the following:



Statistical Analysis
Each and every analysis was performed three times, and the findings are presented as the mean plus the standard deviation.

3. Result & Discussion

Table: 1 Phytochemical Analysis of Rhododendron Campanulatum & Jovellana punctata

S.NO	Phytochemical	*Rhododendron Campanulatum*	Jovellana punctata
1	Alkaloids	-	+++
2	Flavonoids	++	++
3	Glycosides	-	+++
4	Polyphenols	++	+++
5	Terpenoids	+++	++
6	Tannins	+	++
7	Carbohydrates	-	+
8	Steroids	+	++
9	Saponins	+	++
10	Quinones	++	-

+ present ++ mostly present +++ highly present – Absent

Antioxidant Activity
Scavenging of 2-2'-azino bis (3-ethylbenzothiazoline sulphonic acid) ABTS
One of the defining characteristics of antioxidants is their ability to scavenge protonated radicals. The characteristic absorbance maxima of ABTS, which is a protonated radical, is located at 734 nm. This maxima

lowers when the proton radicals are scavenged. Figure 1 illustrates that the extracts were able to scavenge the ABTS cation radical in a quick and efficient manner. With regard to PRV (18.24 ± 1.82 µg/mL), CYV (18.25 ± 0.19 µg/mL), YTPV (50.43 ± 9.49 µg/mL), and CPV (52.84 ± 1.82 µg/mL), the IC50 values are presented in Table 2.

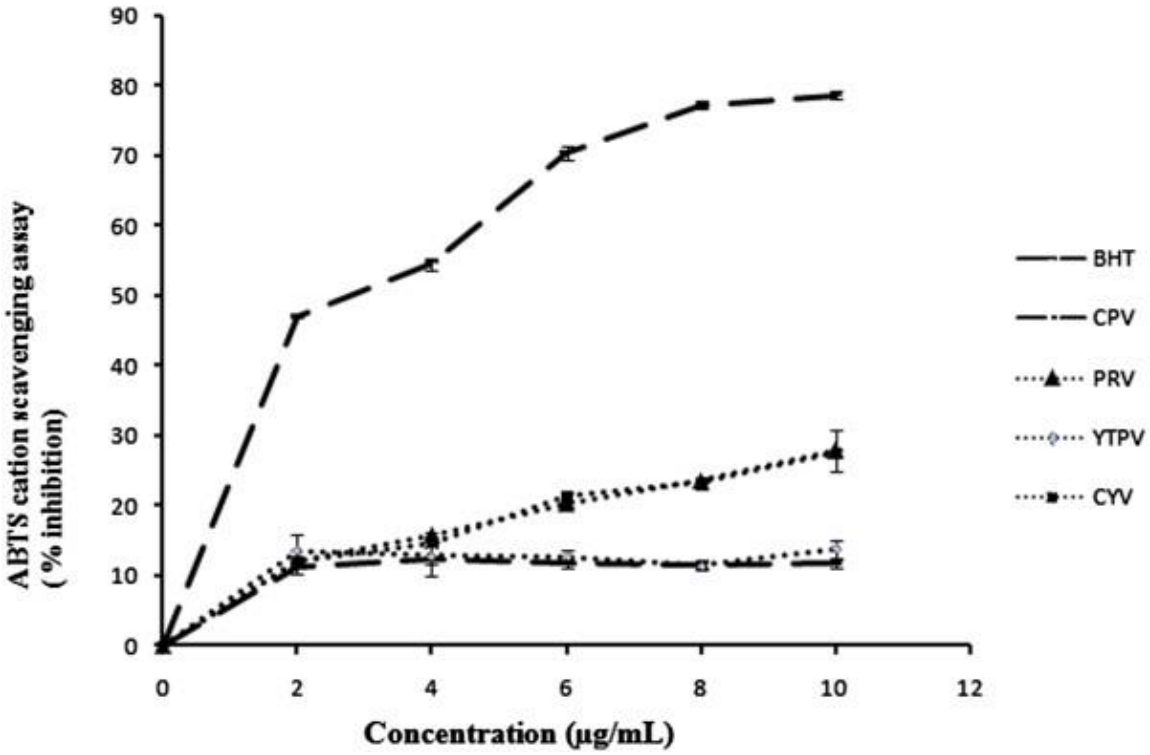


Fig: 1 ABTS Radical Scavenging Activity

Table: 2 Effect of methanolic extract of CPV, PRV, YTPV and CYV compared with BHT standard on ABTS radical

Con (ug/ml)	IC50 values are means ± SD of 3 replicates inhibition				
	BHT	CPV	PRV	YTPV	CYV
2	46.15 ±0.31	11.04 ±0.14	12.04 ±0.35	13.25 ±2.14	12.4 ±045
4	55.61 ±0.59	12.36 ±0.54	15.47 ±0.56	12.45 ±2.45	14.56 ±0.45
6	70.54 ±0.95	11.23 ±0.14	21.56 ±0.36	12.47 ±0.32	21.20 ±0.54
8	77.14 ±0.12	11.87 ±0.56	27.35 ±0.23	11.55 ±0.56	23.14 ±0.45
10	74.45 ±0.51	11.21 ±0.27	24.78 ±2.45	13.45 ±1.68	27.45 ±0.47
IC50(ug/ml)	6.34 ±0.03	53.47 ±1.45	18.24 ±1.18	51.42 ±9.47	18.24 ±0.14

Evaluation of 2-2-diphenyl picrylhydrazyl (DPPH) compound

The reduction of DPPH for both plants is shown in Table 3, which includes the effects of EtOH and aqueous extracts from the leaves of both plants. The antioxidant activity against DPPH radical scavenging was demonstrated by both the extracts and the ascorbic acid that was utilised as a reference. This activity was found to be concentration-dependent. The radical scavenging potential of the Ethanol± extract was found to be more pronounced at the lowest concentration tested, which was 1 µg/mL. The extract had a value of 24.20 ± 2.32 percent, which was even higher than the 9.55 ± 2.01 percent value of ascorbic acid. The ability of the EtOH extract to scavenge the DPPH free radical was found to be two times higher than that of the EtOH extract, as indicated by the IC50 values (108.2 ± 3.46 vs. 290.5 ± 1.97 µg/mL). Ascorbic acid, on the other hand, demonstrated the strongest DPPH free radical scavenging, with an IC50 value of 37.05 ± 1.69 µg/mL, as shown in Table 3.

Table: 3 % Inhibition of DPPH Radical activity

Concentration	EtOH
1	7.49 ± 0.45
10	
30	17.17±1.47
50	
60	23.78±1.45
100	
120	23.47±1.78
240	41.78±2.4
IC 50 (ug/ml)	201.4±1.85

Hydroxyl radical scavenging of by p-NDA technique

This demonstrates that the extract has the ability to scavenge hydroxyl radicals. When the hydroxyl radical was present in the presence of an aqueous extract of C. amada, it was observed that the percentage of inhibition of the radical was dose dependant. At the greatest concentration observed in the experiment, which was 500µg/ml, it was discovered that the hydroxyl radical possessed a maximum quenching capability of 65.20 percent. A comparison was made between the IC50 value of the plant extract, which was found to be 323.8 µg/ml, and the IC50 value of the standard BHT, which was found to be 262.3 µg/ml respectively. Hydroxyl radical species are thought to be among the quickest initiators of the lipid oxidation process [13]. They are responsible for the removal of hydrogen atoms from unsaturated fatty acids to produce hydrogen. As a result, the elimination of hydroxyl radicals is likely one of the most efficient defence mechanisms that a live body may employ in order to protect itself against a variety of diseases.

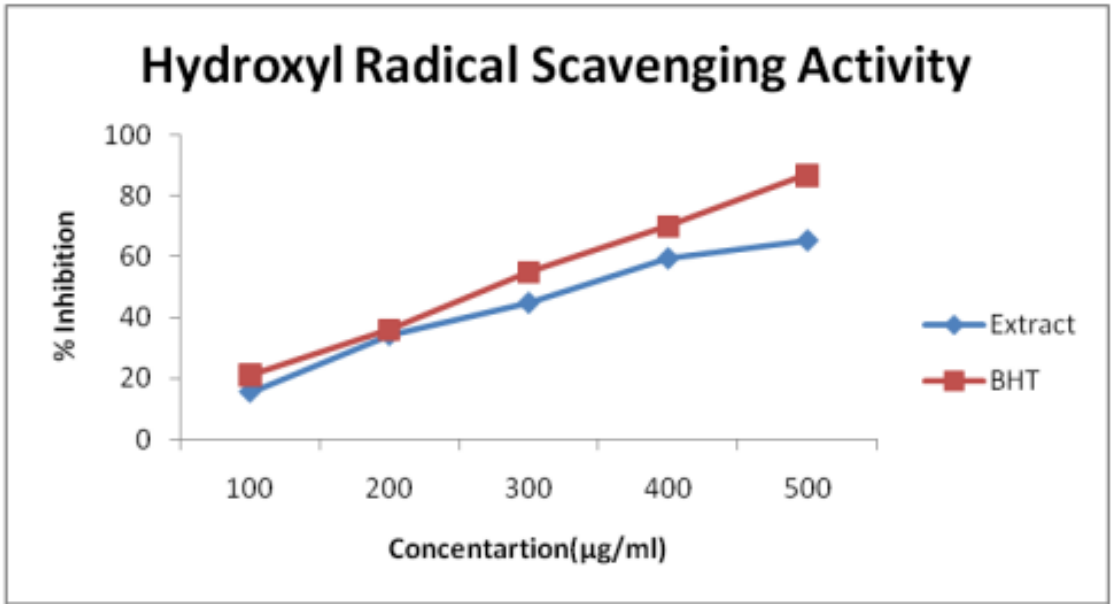


Fig: 2 1-Hydroxyl Radical Scavenging Activity

Organoleptic evaluation

Rhododendron Campanulatum

When it comes to the identification of the plant material, the organoleptic examination is a crucial first step. The fundamental botanical and organoleptic properties of Rhododendron Campanulatum were investigated and assessed. The plant has broad, dark green leaves that are glossy and range in size from six to twenty centimetres. The leaves have a brown coating underneath them. Underneath the glabrous, oblong-lanceolate leaves, which are 4-6 centimetres broad, the leaves are either white or rusty brown-tomentose. When you get closer to the ends of the branches, you will see that there are much more leaves. A similar description was provided, which included the existence of a petiole that had white scales when it was young.a 17 The blossoms of the Rhododendron Campanulatum are particularly beautiful, and during the flowering season, a tree will have a significant number of flowers on it. Rhododendron flowers can range in colour from a deep scarlet to red with white lines, pink to white, and they can even be completely completely white. Figure 3 depicts the dark red flowers that were found in dense globose cymes that were produced by the plant species that were collected for this study. Table 4 provides the specifics of the organoleptic characteristics of the plants. It is a breathtaking sight to behold when Rhododendron trees cover an entire forest when they are in full bloom.

Fig: 3 Morphology character of *Rhododendron Campanulatum*

Table 4: Organoleptic character of Rhodendron campanulatum (leaves)

Organoleptic characters	***R. Campanulatum leaves***
Color	Green
Odor	Odourless
Taste	Bitter
Shape	Broad
Size	6-20cm
Fracture	Fibrous

Jovellana punctata

Organoleptic evaluation of pharmaceuticals refers to the evaluation of medications based on colour, aroma, size, shape, taste, flavour, size of the leaf, and specific qualities such as touch and texture, among other characteristics. The leaves of the plant were investigated for their organoleptic evaluation. figures 4 and 5 are presented here. Organoleptic evaluation can be carried out with the use of organs of particular sense, which encompass the aforementioned factors and, as a result, define some distinctive features of Jovellana punctata, the material. This can be regarded as the initial step towards establishing the material's identification and degree of purity.

Fig : 4 Leaves of Jovellana punctate

Table : 5 Organoleptic character of Jovellana punctata (leaves)

S. No.	**Feature**	**Observation**
1.	Color	greenish
2.	Odour	Strong aromatic
3.	Taste	Characteristic
4.	Head	Small rounded heads
5.	Occurrence	Dense in flat topped clusters
6.	Diameter	2-2.5cm
7.	Shape	Small tubular shaped
8.	Petals	Arranged in clusters

Table : 6 Data showing physico chemical properties of Rhodendron campanulatum

S.NO	**Parameter**	**Values**
1	**Total ash (mg/gm)**	**4.15**
2	**Acid insoluble ash (mg/gm)**	**1.06**
3	**Water soluble ash (mg/gm)**	**2.45**
4	**Loss on drying (mg/gm)**	**1.6**

Table 7 Data Showing Physico-chemical Properties of Jovellana punctata (leaves)

S.NO	Parameter	Values
1	Total ash (mg/gm)	4.19
2	Acid insoluble ash (mg/gm)	1.09
3	Water soluble ash (mg/gm)	2.75
4	Loss on drying (mg/gm)	1.4

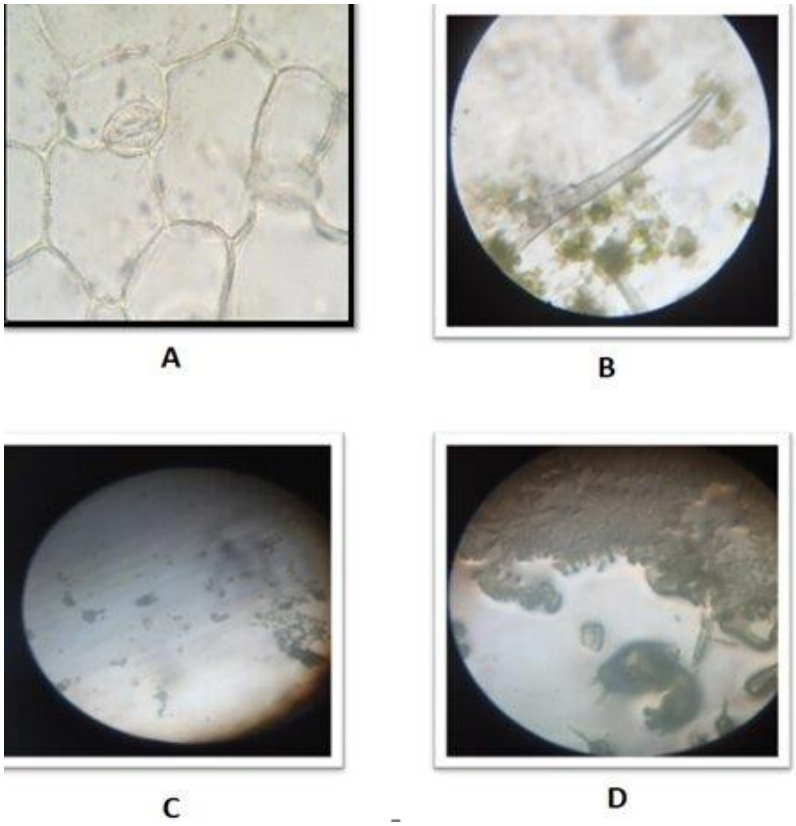


Fig: 5 Powder characters of Lantana camara A: Stomata B: Trichome C: Calcium oxalate crystals D: Spiral vessels

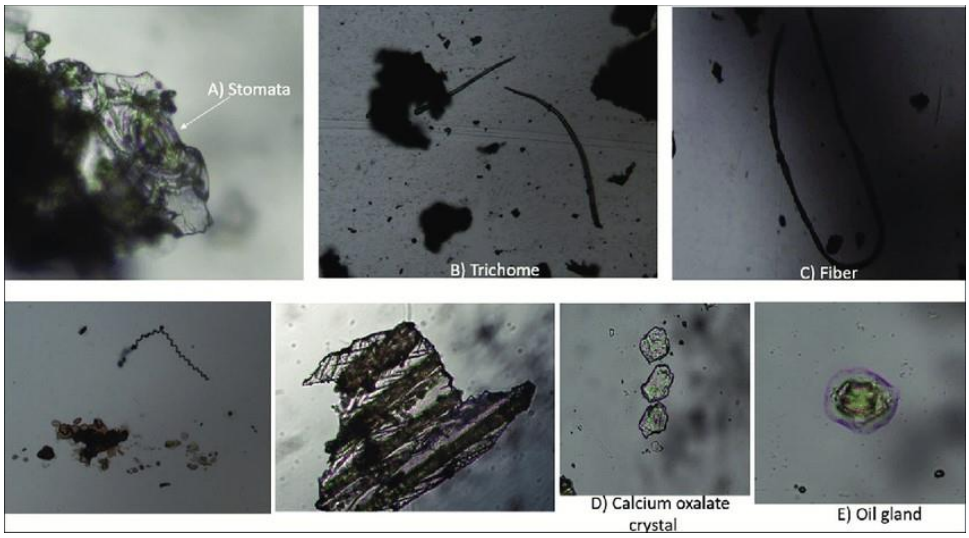


Fig: 6 Powder microscopy of the leaves observed under Digital Microscope (Truechrome-2). All the components are observed using ×10 and ×45

4. Conclusion

In the present study, different *Rhododendron Campanulatum* & Jovellana punctata *leaf* were submitted to methanolic extraction and the antioxidant and Phytochemistry of those extracts were evaluated. The present study showed variable results depending on the plant organ. Leaf and stem extracts showed an interesting phenolic compound content correlated with robust antioxidant and Phytochemical extract, while the leaf extract displayed lower activities. However, it should be noted that if the local population uses it extensively for its biological properties, it would be important to cultivate it in order to avoid its loss. Moreover, it would be interesting to study the variability in extract compositions and in the biological activities of plants grown in different locations and seasons, as it is known that the culture conditions can widely impact the production of secondary metabolites by plants. Preliminary physico-phytochemical study of the *Rhododendron Campanulatum* and Jovellana punctata (L.) Leaves study concluded to macroscopic, other physical values and parameters will help to identify the species of plant, phytochemical screening will help the presence of secondary metabolites, Microscopy is an important tool in the evaluation of crude drugs which is applicable at various levels such as the authentication of the crude drugs, study of powdered drugs, which is responsible for the medicinal & pharmacological importance of the plant. *Rhododendron Campanulatum* and Jovellana punctata Leaves is known as wide range of medicinal value, it helps to identification, authentication and standardization. It also require to research on phytochemical and pharmacological aspect. However research going on it would be easier to develop new drugs.

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