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ARTABOTRYS HEXAPETALUS – A QUICK REFERENCE FOR ITS PHYTOCHEMICAL ANALYSIS

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ABSTRACT

The chemical structure, biosynthesis, metabolism, natural distribution, and biological function are all covered by phytochemistry. Plant scientists have been interested in phytochemical investigations as a result of the development of new and sophisticated methodologies. Plant chemical contents should be studied and analyzed not only for the discovery of medicinal medicines but also for the discovery of new sources of such chemical substances. The phytochemical analysis of acetone chloroform, ethyl acetate, and an aqueous combination of chloroform and ethanolic extracts from Hexapetalus artabotrys was carried out in this work.

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1. INTRODUCTION

The plant-based compound is used in many disorders such as cancer [1–3], diabetic [4, 5], microbial pathogenesis [6, 7], and viral diseases [6, 8–10]. Hari Champa, also known as Artabotrys hexapetalus or "Manorangini" in India, has an exceptionally seductive aroma! India and tropical Asia are the native habitats of this species [11]. A medium-sized climbing shrub that grows 8-10 feet tall and has fragrant greenish flowers that fade to yellow with age [12]. They last a long time once harvested, and if preserved in water, their aroma can last for days, enveloping a whole room. It has a delicious, sweet scent, indicated by the Manipuri name Chini Champra, which means sugar lemon [13].

There are 8-16 pairs of lateral veins on each side. The fruits are 3-4 cm long, oval, and smooth when fully ripe. When young, this climber grows like a typical shrub, but as it reaches 5-6 feet, it begins to vine. It is not a vining vine that is aggressive [14]. The plant Artabotrys hexapetalus was received, identified, and authenticated by Tamilnadu Aromatic Medicinal Plant Corporation Ltd., Chennai, by the principal botanist. The study focused on the plant's aerial elements, such as leaves, seeds, flowers, and stems. There have been reports of the therapeutic impact of floral juice (combined with coconut oil) on eye burning and eyesight improvement [15]. Extraction is a critical step in synthesizing flavonoid concentrate from high-flavonoid sources. Traditional extraction procedures have various drawbacks, such as being time-consuming and labor-intensive, having low selectivity and yield, and requiring many organic solvents [16, 17].

It's difficult to forecast the best experimental conditions for a specific separation task; thus, excellent experimental design is critical. Orthogonal arrays are frequently used in these experiments. Experimenters always explore as many aspects as possible in a design with the smallest number of runs possible to make the design saturated [18].

Although flavonoids have been recorded in the roots and leaves, there is no scientific evidence on the flavonoid content of Tabernaemontana heyneana flowers. Essential elements, including trace metals, are abundant in some medicinally significant plants. These metals can aid in the restoration and maintenance of the body's necessary nutritional absorption. T. alternifolia, also known as Naagakuda, is a medicinal plant found in the western ghats of Maharashtra, India. It's a deciduous shrub or tree. T. alternifolia is utilized as a local medicine in all of its sections. Alkaloids contained in the whole plant, including the roots and leaves, have been discovered to be effective against lymphocytic leukemia. The plant produces a chemical called camptothecin. This substance is commonly used to treat a variety of cancers. T. alternifolia leaves are used to treat a variety of ailments, including cancer1, diarrhea, and syphilis. Alkaloids, flavonoids, steroids, phenolics, terpenes, volatile oils, and other secondary metabolites are found in these plants and are important for their antibacterial, estrogenic, and anticancer effects. This research aims to determine the antibacterial, antifungal, and phytochemical analyses of four medicinal herbs. The most successful plants were Punica granatum, Prosopis juliflora, Psidium guajava, and Aegle marmelos. Sukirtha and coworkers (2012).

2. MATERIALS AND METHODS

2.1. Collection of samples

The medicinal plants utilized in the study were Artabotrys hexapetalus leaves obtained in Tambaram, Chennai, and Tamil Nadu. 100 g of dried Artabotrys hexapetalus leaves and flowers were extracted with chloroform (70%)-Water (30%) mixture, Acetone, Ethyl Alcohol (70%)-Water (30%) mixture, Ethyl Acetate, and Water. For a period of 24 hours, 150 ml of each solvent mixture was used to extract the samples. The corresponding solvents were concentrated under reduced pressure and kept in a water bath (at 50°C) at the end of the extraction. The experimental solutions were now placed in the refrigerator. Based on techniques available in the literature, the extracts were tested for alkaloids, saponins, tannins, steroids, flavonoids, anthraquinones, cardiac glycosides, and reducing sugars [19]. Alkaloids, saponins, steroids, flavonoids, anthraquinones, cardiac glycosides, proteins, amino acids, tri-terpenoids, and sugar reduction assays are all available [20, 21].

3. RESULTS AND DISCUSSION

The phytochemical contents of Artabotrys hexapetalus aqueous chloroformic, acetone, aqueous ethanolic, ethyl acetate, and aqueous extracts are shown in Table 1. The presence of flavonoids in acetone and ethyl acetate extracts was confirmed by a phytochemical screening of the crude extract, although tri-terpenoids were lacking in all extracts. The tannins can be found in aqueous chloroform and ethyl acetate extracts but not other extracts [4].

The aqueous extract is positive in steroid analysis, while the others are negative. Although cardiac glycosides and reducing sugars were found in aqueous chloroform extracts, the rest of the extracts were found to be negative. Scientists are studying herbal remedies worldwide to help the body's immune cells fight cancer [22]. Herbal formulations can be devised to assault malignant cells without damaging healthy cells by understanding the complicated synergistic interaction of numerous elements of anticancer herbs. Synthetic and natural medications are both derived from medicinal botanicals. Pharmaceutical firms have examined almost 25,000 plants for anticancer medicines so far. Plants with compound richness are usually highly usable in drug discovery. Several studies showed that those bioactive compounds had shown anti-angiogenic [23], anti-tumor and anti metastasis activities. Thus, evaluating the plant's compound library is the preliminary step for drug discovery processes [24].

Table 1. illustrates the phytochemical analysis of Artabotrys hexapetalus extracts in aqueous chloroformic, acetone, aqueous ethanolic, ethyl acetate, and aqueous chloroformic extracts.

S.NO.	Phytoconstituents	Aqueous Chloroform Extract	Acetone Extract	Aqueous Ethyl Alcohol Extract	Ethyl Acetate Extract	Aqueous Extract
1.	Alkaloids	++	--	--	--	--
2.	Amino acids	--	--	--	--	--
3.	Anthraquinones	++	--	++	--	--
4.	Cardiac glycosides	++	--	++	--	--
5.	Flavonoids	--	--	--	++	--
6.	Proteins	--	++	--	--	--

7.	Reducing sugar	--	++	--	--	++
8.	Saponins	++	--	--	--	--
9.	Steroids	--	--	--	++	--
10.	Tannins	++	--	--	++	--
11.	Tri-terpenoids	--	--	++	--	++

4. CONCLUSION

Numerous metabolites have been discovered in the phytochemical screening of Artabotrys hexapetalus, which adds to phytochemical and pharmacological action. Artabotrys hexapetalus has received little attention. The phytochemicals in Artabotrys hexapetalus may contribute in a variety of ways to numerous research in a truthful manner to the plant's various actions, according to the current study.

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COMPETING INTEREST

The authors declare no conflict of interest.

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