



PHYTOCHEMICAL SCREENING OF FLOWERS OF HOLORRHENAPUBESCENS (BUCH-HAM)WALL EX. G.DON. USED AS FOOD BY THE TRIBES OF GADCHIROLI DISTRICT (M.S.)

S. K. Biswas¹ and P.M. Shende²

¹Assistant Professor Department of chemistry, Raje Dharmarao college of science,
Aheri.(M.S.), India

²Associate Professor, Department of Chemistry, Dr. Ambedkar College, Chandrapur.;
Corresponding Email: shyamalkbiswas7777@gmail.com, parmanand1158@gmail.com

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ABSTRACT:

Holorrhnapubescens (Buch-Ham)Wall ex. G.Don. belongs to Apocyanaceae family . The flowers of this tasty and nutritious wild vegetable used by tribes of gadchiroli district (M.S.) throughout the year. The objective of this study aims at determining the bioactive chemical constituents of flowers of selected wild edible plants .The Phytochemical screening of the crude extracts of plant revealed the presence of saponins, Phenols, flavonoids ,Proteins, diterpenes, Tannis, Alkaloids, Phytosterols and Carbohydrates.

Keywords: - Holorrhnapubescens (Buch-Ham)Wall ex. G.Don ,Phytochemical screening, Wild vegetable.

INTRODUCTION :

Mother Nature has always been the greatest defender of humans in the world, giving them all the sustenance they could possible need. When people lived as hunter-gatherers in the past, the only fruits and possibly some vegetables they could consume were those that were easily accessible in their local environs. Although a sizeable section of the population in rural areas continued to rely on wild plant species, as civilization advanced, humans began to cultivate, domesticate animals, and depend more and more on cultivated species. They were used by tribal people in particular to gather food from the neighbouring woods.

The Aborigines considered that certain seasonal wild plants were advantageous to health and provided immunity when it rained, which is supposed to be the most likely period for the development of many diseases. These vegetables are inexpensive, delectable, and packed with

nutrients. Additionally, gathering these vegetables and selling them in other towns gives many individuals temporary employment. The indigenous peoples that inhabit remote forest areas use wild plants as a food source as part of their culture (1).

According to the FAO, wild foods are consumed regularly by rural residents and not just during times of food scarcity(2). This everyday use of wild items improves the tribe's overall nutritional health(3). Traditional leafy vegetables have a better nutritional content than several other types of conventional veggies.(4) Additionally, they contain antioxidants that guard against a variety of chronic illnesses, including heart disease and some types of cancer. Traditional vegetables have the potential to assist satiate the expanding population's desire(5).

The main objective of our research was to analyze the presence or absence of different

phytochemicals in the selected edible wild plant from Gadchiroli district, used by the tribes to gain stamina and vitality.

MATERIALS AND METHODS :

Plant materials :

The present study included plant species *Holorrhnapubescens* (Buch-Ham)Wall ex. G.Don.

Botanical name	Family	Local name	Habit at	Part s used
<i>Holorrhnapubescens</i> (Buch-Ham)Wall ex. G.Don.	Apocyanaceae	Pandhra Kuda	Flowering in Rainy & Winter season	Flowers



Chemicals :

Distill water, ethanol, methanol, Fehling solution A and Fehling solution B, aqueous HCl, chloroform, concentrated sulphuric acid, Ammonia solution, picric acid, Hexane.

Sample collection:

The edible plant was collected locally from the forest Khamancheru village near aheri tahsil of Gadchiroli district (M.S.). The plant was used for the purpose of their phytochemical analysis. The plant collected was identified botanically in department of Botany R.D. College of Science , Aheri. The flowers of selected plant were used for phytochemical analysis.

Preparation of the plant extract:

The chosen plant flowers were taken from the plant and washed under running water to get rid of any dust. Following a few days of drying in the shade, the plant sample flowers were ground into a powder and stored in polyethylene bag. The test tube containing the plant powder received the suitable solvent added to it until it was completely saturated with it. After filtering the solution through paper, an extract of the chosen plant samples was used for additional phytochemical examination.

Phytochemical test :

Holorrhnapubescens (Buch-Ham)Wall ex. G.Don. was subjected to phytochemical analysis to detect the presence of some active chemical compound. Chemical test were carried out to identify the presence of phytoconstituents in water, ethanol, ether, methanol, acetone using standard procedure. The test given below were conducted in the laboratory to confirm presence and absence of phytoconstituents.

Detection of alkaloids:

Extract was dissolved in dilute Hydrochloric acid and filtered.

a) Mayer's Test: Mayer's reagent was used to process the filtrate (Potassium Mercuric Iodide). Alkaloids are present when a precipitate with a yellow colour forms..

b) Dragendroff's Test: Dragendroff's reagent was used to treat the filtrate (solution of Potassium Bismuth Iodide). Alkaloids are present when red precipitate is formed.

Detection of carbohydrates:

Extract was dissolved in 5 ml distilled water and filtered. The filtrate was used to test for the presence of carbohydrates.

a) Molisch's Test: In a test tube, filtrate were treated with two drops of an alcoholic -naphthol solution. The violet ring that forms at the junction is a sign of the presence of carbohydrates.

b) Benedict's Test: Benedict's reagent was applied to the filtrate and they were gently heated. Precipitate that is orange or red suggests the presence of reducing sugars.

c) Fehling's Test: Filtrate were heated with Fehling's A & B solutions, neutralised with alkali, and hydrolyzed with diluted HCl. Reducing sugars are present when a red precipitate forms.

Detection of glycosides: Extract was hydrolysed with dil. HCl, and then subjected to test for glycosides.

Legal's Test:

Sodium nitropruside in pyridine and sodium hydroxide were used to treat the extract. Heart glycosides are present when a pink to blood red colour forms.

Detection of saponins

Foam Test: 2 ml of water and 0.5 gm of extract were mixed together. The presence of saponins is indicated if the foam formed lasts for 10 minutes.

Detection of phytosterols

a) Salkowski's Test: Chloroform was used to treat the extract before filtering. A few drops of concentrated sulfuric acid were added to the filtrate, which were then agitated and left to stand. The presence of triterpenes is indicated by a golden yellow appearance.

b) Libermann Burchard's test: Chloroform was used to treat the extract before filtering. A few drops of acetic anhydride were added to the filtrate before they were heated and chilled. Sulfuric acid was added, conc. When a brown

ring forms at the junction, phytosterols are present.

Detection of phenols

Ferric Chloride Test: Three to four drops of a ferric chloride solution were added to the extract. Phenols are present when a bluish black colour forms.

Detection of tannins

a) FeCl₃ Test: Two millilitres of water and a few drops of a 5% FeCl₃ solution were added to 0.5 grammes of extract. Condensed tannins are indicated by dark green, whereas hydrolysable tannins are indicated by dark blue.

b) Lead Acetate Test: 10% Lead Acetate solution was added to 0.5 gm of extract and 2 ml of water. Tannins are present as evidenced by the formation of white granules.

Detection of flavonoids

a) Alkaline Reagent Test: Sodium hydroxide solution in a few drops was used to treat the extract. When diluted acid is added, a strong yellow colour forms that eventually turns colourless, indicating the presence of flavonoids.

b) Lead acetate Test: A few drops of a lead acetate solution were added to the extract. The presence of flavonoids is indicated by the precipitate's yellow colour.

Detection of proteins

Xanthoproteic Test: A few drops of concentrated nitric acid were added to the extract. Yellow colour formation shows the presence of proteins.

Detection of diterpenes

Copper acetate Test: A solution of copper acetate containing three to four drops was added to the dissolved extract in water. The development of the emerald green colour is a sign that diterpenes are present.

RESULTS :

This study has shown the presence of phytochemicals that are considered active medicinal chemical constituents. Important medicinal phytochemicals such as saponins, Phenols, flavonoids, Proteins, diterpenes,

Tannis, Alkaloids, Phytosterols and Carbohydrates were present in the flower samples. . Epidemiological studies suggest that dietary flavonoids prevent coronary heart disease. Plants containing alkaloids are used in medicine to relieve headache and fever. Antibacterial and analgesic properties are attributed to them(6,7) .

DISCUSSION :

The research work was carried out on the selected vegetables plant which shows that phytochemical constituent's i.e., saponins, Phenols, flavonoids ,Proteins, diterpenes, Tannis, Alkaloids, Phytosterols and Carbohydrates, are present as summarized in Table 1 .

CONCLUSION :

The secondary metabolites, such as tannins, saponins, phenols, alkaloids, flavonoids, proteins, diterpenes, and carbohydrates, generally come from the medicinal plants(8) . The use of medicinal plants is essential in the fight against sickness. These secondary metabolites are what give medicinal plants their antidiuretic, anti-inflammatory, antianalgesic, anticancer, antiviral, anti-malarial, antibacterial, and anti-fungal properties(9). In order to find and screen the phytochemical components that are essential for the creation of novel medications, medicinal plants are used.

Due to the existence of the phytochemical elements, the results of the current study and the prior phytochemical examination in medicinal plants are remarkably similar(10,11,12). Which indicate that this Wild edible plants species is rich in medicinal properties that not only fulfill the hunger but also helpful in combating the diseases. Both research organisations and pharmaceutical corporations may be interested in the phytochemical study of wild vegetable plants for the production of new medications for the treatment of various diseases. We therefore

anticipate that the significant phytochemical characteristics found in our study of the flowers of wild vegetable plant in Khamancheru will be useful in combating several diseases that are specific to this area.

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Table 1: Phytochemical analysis of *Holorrhnapubescens* (Buch-Ham)Wall ex. G.Don.

Sr. No.	Name of Test	<i>Holorrhnapubescens</i> (Buch-Ham)Wall ex. G.Don.
1	Detection of saponins Foam Test:	+
2	Detection of Tannins a) FeCl ₃ Test	+
	b) Lead Acetate Test	+
3	Detection of flavonoids a) Alkaline Reagent Test	+
	b) Lead acetate Test	+
4	Detection of alkaloids: a) Mayer's Test	+
	b) Dragendroff's Test	+
5	Detection of carbohydrates: a) Molisch's Test	+++
	b) Benedict's Test –Reducing sugar	-
	c) Fehling's Test- Reducing sugar	-
6	Detection of glycosides Legal's Test:	-
7	Detection of phenols Ferric Chloride Test	+
8	Detection of phytosterols	
	a) Libermann Burchard's test	+
9	Detection of proteins Xanthoproteic Test	+
10	Detection of diterpenes Copper acetate Test	+

+ = indicates presence of phytochemicals and - = indicates absence of phytochemicals. +++ = shows high concentration. ++ = shows moderate concentration.