



SURVEY OF PHYTOCHEMICALLY RICHED WILD VEGETABLES USED BY TRIBAL'S OF KATEPURNA SANCTUARY, VIDARBHA REGION.

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ABSTRACT :

Katepurna Wildlife Sanctuary in Vidharbha region of Maharashtra has rich source of vegetation inspite that most part of this region consists of dry deciduous type of vegetation.

This region has large population of tribles mainly Korku, Gonds and Bhills etc. They have developed a highly complex and very specific knowledge of their local vegetation on which they are depended.

The study reveals the use of wild plants as vegetables due to nutritional phytochemical content such as *Abrus precatorious*, *Dioscoria pentaphylla*, *Basella alba*, *Oxalis corniculata*. The various plant part used included whole plant, leaves, stem, root, bark, seed, fruit and any other vegetative part.

Keywords: wild edible plants, tribles, Phytochemicals, Nutrition.

Introduction :

Vidarbha region of Maharashtra has rich biodiversity of plants, inspite of having dry deciduous type of forest. Forest have provided tribal's with enough material from natural wealth for use as traditional food and medicine. The tribal's of Katepurana Sanctuary are Andh, Halba, Pawra, Gond, Korku etc.

The diversity in the wild vegetables not only give variation in diet but also provide nutritional diversity.

Wild vegetables refer to the species which are not cultivated at large scale commercially. They are grown on waste land by tribal communities or collected from their natural habitat, yields etc and used as a source of food income.

Developing countries like India where food industry, malnourishment, poverty is more, potential of Wild vegetable in providing food nutrition, source of income and lively- hood in rural area plays important role.

The survey of plants has been done which was used by tribal as wild vegetable which has enormous medicinal values and phytochemicals which imparts a major role in nutrition. There are some wild vegetables like *Abrus precatorius*, *Basella alba*, *Cassia tora*, *Dioscoria pentaphylla* which are comely used by tribals and phytochemically important.

Sample collection & phytochemical screening *Abrus precatorius* :

Abrus precatorius (Linn) - The plants belongs to family fabaceae commonly known as rosary pea or ratti is medicinally important.

Phytochemical screening of *Abrous precatorious* Linn. seed extract was treated for qualitative estimation for the presence of alkaloids, Carbohydrates, Flavonoids, saponins, phytosterols, tannins according to standard procedure (Rahman *et al.*, 2011). Following phytochemical screening methods were conducted.

Test for Saponins :- Extracts (300mg) was boiled with 5ml water for 2 minutes, the mixture was cooled and mixed vigorously and left for 3 minutes. The formation of froth indicates the presences of saponins.

Test for Tannins :- 1 ml extract was added to 2 ml of sodium chloride (2%), filtered and mixed with 5 ml 1% gelatin solution, precipitation indicates the presence of tannins.

Further test was carried out for carbohydrates, steroids and sterols glycosides, various oils which also shows the presence in the compound.

Test for Alkaloids :- The test was conducted ,commonly called as (Mayer's Test). The extract of sample was evaporated to dryness and the residue was heated on boiling water both with 2% hydrochloric acid. After cooling the mixture was filtered and treated with few drops of the Mayer's reagent. Yellow colour indicates presence of Alkaloids.

Test for Favonoids:- 1 ml of plant extract and few drops of dilute sodium hydroxide were added. An intense yellow colour was produced which becomes colorless on addition of few drops of dilute acid indicate the presence of flavonoids.

Phytochemical investigation of ethnolic abstract of *A. precatorius* seeds :-

Phytochemical Constituents	Ethanollic abstract of <i>Abrus precatorius</i>
Carbohydrates	+
Alkaloids	++
Flavonioids	++
Tannins and Phenolic Compounds	+
Protiens and Amino Acids	+
Fixed oil	+
Anthraquinone	-

Preliminary screening of *Abrus precatorius* Linn extracts "+" indicates presence of compound and "-" indicates the absence of the compound. "+ +" and "+ + +" indicates the maximum presence of the compounds.

***Basella alba* :**

Basella alba (Indian Spinach or poi leaves) is a highly succulent vegetable similar to water leaves (Harry 2000) belongs to the family of Basellaceae. The leaves of *Basella alba* are traditionally used in Ayurveda system of medicine to bring sound Sleep (Anandarajagopal *et al.*, 2011). In Ayurveda it is also used for hemorrhages, skin diseases, weakness, ulcers as a laxative. This plant is used as Thai Traditional vegetable. There are two varieties of *Basella alba*, they are green and reddish purple and it is also used worldwide due to naturally occurring biologically active compounds of medicinal use. The phytochemicals in this plant can be identified various by various method.

Sample collection & phytochemical screening *Basella alba*:

Basella alba varieties were collected locally from the Katepurna region. The varieties were differentiated in green and reddish purple colours. The plant extract was prepared by using leaves and stem. The samples were air dried for few days and crushed into powder and store in air tight containers.

Extraction was carried out. The dried plant material was extracted with water and methanol at room temperature, the chloroform and petroleum ether was decanted after 24 hours and the extraction was repeated. The pooled extracts were filtered and then concentrated under vacuum.

Test for Alkaloids :-

Small quantities of various extracts were separately treated with few drops of dilute HCL and filtered. The filtrates were used for the following tests.

1. Mayer's reagent – cream precipitate
2. Hanger's reagent –yellow precipitate
3. Wagner's reagent – reddish brown precipitate

Test for Flavonoids:-

Small quantities of various extracts were dissolved separately in aqueous NaOH. Appearance of yellow color indicates the presence of flavonoids.

Test for Tannins :-

Extracts were taken separately in water and test for the presence of tannins was carried out with the following reagents.

1.5% ferric chloride solution-violet colour

2.1% solution of gelatin containing 10% NaCl

Test for saponins:-

The extract were diluted with 20ml of diluted water and it was agitated in a measuring cylinder for 15 minutes. The formation of 1cm layer of foam shows the presence of saponins

Preliminary phytochemical Analysis:-

Phytochemicals	Leaf Extract		Stem extract	
	Green	Reddish purple	Green	Reddish Purple
Alkaloids	-	-	-	-
Flavanoids	+	+	+	+
Tannis	+	+	+	+
Saponins	+	+	+	-

***Dioscoria pentaphylla* :**

Dioscoria is commonly known as Yam. Yam is the leading form of staple food of millions of people in the tropical and subtropical countries. Many Yams are of economic importance as tuberous food crop and are counted just after potato in its food value. Tubers are also rich source of starch that as used as important dietary supplement.

A part from starch the root tubers of *Dioscoria* also contains proteins, fats, fibres. It also contains mineral nutrients such as potassium, sodium, phosphorous, calcium, magnesium, copper, iron, zinc and also have ethnomedicinal values.

Sample collection & phytochemical screening of *Dioscoria pentaphylla*:

Dioscoria pentaphylla was collected from the hilly regions of Katepurna sanctuary. The samples were prepared by drying the tubers and chopped into smaller pieces and ground into powder, stored in airtight container.

10 gm of powder was taken in 100 ml of methanol and ethyl acetate and the extract is

prepared. The condensed extract were used for preliminary screening of phytochemical methods, such as alkaloids, flavonoids, saponins and terpenoids.

Test for flavonoids : Few drops of concentration of HCl and Mg turning to 1 m of ethanol extract. Appearance of pink or magenta-red colour indicates the presence of flavonoids.

Test for Alkaloids : Extract is added to 1% HCl and 6 drops of Mayer's reagent and Dragendroff's reagent. Any organic precipitate indicates the presence of alkaloids in the sample.

Test for Terpenoids : 5 ml of each extract was added to 2 ml of Chloroform and 3 ml of concentration of H₂SO₄ to form a layer of reddish brown coloration of the interface was showed to form positive result for terpenoids.

Test for Saponins : The extract with 20 ml of distilled water was agitated in a graduated cylinder for 15 minutes. The formation of layer of foam indicates the presence of saponins.

Phytochemical screening of *D. pentaphylla*:-

1.Ethyl acetate extract	Phytochemicals	Present /Absent
	Alkaloids	-
	Flavanoids	-
	Terpenoids	+
	Saponins	+
2. Methanol extract	Alkaloids	-
	Flavanoids	-
	Terpenoids	++
	Saponins	+

Conclusion:-

The *Abrus precatorius* commonly called as Gunj are used as vegetable and major ingredient in betal chew.

The present study concludes that the seeds of *Abrus precatorius* Linn can be used as good antioxidant to treat free radical induced diseases.

Similarly *Basella alba* is typical of leafy vegetable high in Vit. A, Vit. C, iron and calcium. It is particularly rich source of soluble fiber. It is cooked with sardins, onions, garlic and used for preparing various curries.

The *Basella alba* are the sources of secondary metabolites. Both the varieties contains flavonoids, tannins and saponins. The green leafy vegetable plays important role in preventing various diseases. The antifungal, anti-inflammatory, analgesic, androgenic activities of the green leafy vegetables are due to presence of secondary metabolites. These contains phytochemical constituents, it is used for the manufacturing of new drugs.

Dioscoria tubers are mainly used as food. The tubers are rich source of dietary nutrients and carbohydrates.

The presence of various Phytochemicals such as flavonoids, Saponins, Terpenoids, Alkaloids is the plant *Dioscoria* confirms that the genus is a plant source of useful modern drug.

References :

- Anandarajgopal K, Sudhakar D, Ajaykumar TV and Muthukumaran G.

(2011): Evaluation of CNS Depressant Activity of Aerial parts of *Basella alba* Linn. *IJPI's Journal of Pharmacology and Toxicology*; 1:5.

- Bhandari RM, Kasai T, Kawabata J. (2003): Nutritional evaluation of wild yam (*Dioscoria spp.*). *Tuber of food chemistry*; 82(4): 619-623.
- Borthakur B.K. (1996): Wild edible plants in market of Aasam, India. In: *Ethnobiology in Human Welfare*, Edn. S.K. Jain, Deep Publication, New Delhi.
- Gadgil M. & Vartak VD (1975): The sacred grooves of Western ghats in India. 30, 152.
- Godbole S, Pendse G and Bedekar VA (1996): *Glossary of vegetable drugs*. IDRA, Pune.
- Kamble SY, Pradhan SG (1983): *Ethnobotany of Korku's in Maharashtra*. *Bull. Bot. Surv. India*, 22.
- Kokate C.K., A.P. Purohit and S. B. Gokhale (2002): *Pharmacognosy of 18th Edition*, Nirali Prakashan, Pune (India).
- Rahman, M.H., M. B. Alam, N.S. Chowdhary, M. Hasan and M. K. Zha *et al.*, (2011): Antioxident, analgesic and toxic potentiality of *Stephonia japonica* (thumb.) mers leaf. *Int. J. Pharmacology*, T. 257-262.