

PHYTOCHEMICAL ANALYSIS OF IPOMOEA BATATAS, A SWEET POTATO (L.)
FAMILY: CONVULVULACEAE

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ABSTRACT

The present investigation revealed that is to the aim of Phytochemical analysis of Ipomoea batatas a sweet potato (L.) Family: Convolvulaceae. The major bioactive constituent present in plant extract. These different extracts of Rhizome were analyzed by modern scientific procedure given by, Harborn 1998, Kokate 1994, Abulude 2007. The result in ether extract revealed the presence of Triterpenoids, Steroids and Resins. Triterpenoids, Steroids, Flavonoids and Resins in Chloroform extract. Triterpenoids, Steroids, Alkaloids, Flavonoids, Carbohydrates, Resins, Proteins in Methonolic extract. The water extract showed the presence of Carbohydrates, Proteins and Saponins. Further research of this plant part is carried for the characterization of various bioactive substance.

KEYWORDS: Phytochemical, Analysis, Bioactive, Extract, Ipomoea batatas.

INTRODUCTION

The standread bioactive component is great importance to the health of individual and community. Some bioactive substance that produced a definite physiological action on the human body, Such a bioactive constituents of plant are Alkaloids, Tannins, Flavonoids and Phenolic compounds, Which are used for medicinal purposes.^[6]

Ipomoea batatas, a sweet potatoes. is dicotyledonous plant belong to the morning glory family, convolvuaceae; Its larges starchy, sweet-testing tuberose roots are a roots of vegetable. The young shoot and leaves are sometime eaten as green vegetable. The orange variety is often called 'Yam'.^[7]

The origin and domestication of sweet potato occurred in either central or south America^[8], Although the sweet potato is not closely related botanically to the common potato, They have a shared etymology. The first Europeans to test sweet potatoes were member of Christopher Columbus expedition in 1492. Later explores found many cultivators under an assortment of local names, but the name which stayed was the indigenous Taino-name of batata. The Spanish combined this with the Quechua word for potato, Papa, to create the word patata for the common potato.^[9]

Sweet potato are cultivated throughout tropical and warm temperate regions wherever there is sufficient water to support there growth. sweet potato became common as a food crop in the island of the Pacific Ocean. South India, Uganda and other African countries.^[10] The center for

science in the Public Interest ranked the nutritional value of sweet potato as highest among several other foods'. In addition their leaves are edible and can be prepared like spinach or turnip green.^[11]

In India sweet potato is roasted slow over kitchen coal at night and eaten with dressing while easier way in boiling before peeling, cubing and seasoning for vegetable dish as a part of the meal. In Indian state of Tamilnadu it is known as 'Sakkara valli Kilangu'.^[12]

Besides simple starches raw sweet potatoes are rich in complex carbohydrates, dietary fiber and beta-carotene (a provitamin A carotenoids) with moderate content of other micronutrient including vitamin B₅, vitamin B₆, And manganese.^[13]

Now a day vitamin A and beta-carotene deficiency carry a serious health problem. Also the rhizome of sweet potato content sufficient amount of bioactive component to cure indigestion, abdominal pain, hyper tension, expectoranal with to provided higher nutrient density than cereal.^[14]

So the aim of this study was to determine the phytochemical properties of various extract which enhanced the major physiological action, Thus Ipomoea potato rhizome an important to human health.

MATERIALS AND METHOD

The plant material rhizome of sweet potato which are going to identify and authenticated by using floras, Saldana & Nicolson (1978). The plant material collected

from local market of Bhandara District. The specimen is stored in Department of Botany Late N. P. W. College Lakhani.

Preparation of powder

The plant part of rhizome cut in to small pieces and dried under shade. These dried materials were mechanically powdered sieved using 80 meshes and stored in an airtight container. These powdered material were used for further phytochemical analysis.

Extraction

Dried and coarsely powdered rhizome of *Ipomoea batatas* 350g were refluxed with petroleum ether 60-80°C for four hour. The extract was decanted off and fresh quantity of petroleum ether was added again and refluxed for another two hours. The combined petroleum ether extract were concentrated on water bath set at 40°C Where by a highly greenish thick mass obtained.

The defatted dried rhizome were successively extracted with chloroform and methanol to obtained amorphous buff coloured powder and brownish yellow sticky mass, whereby after concentration. Finally mass was macerated with water for 1-2 days, filtered and concentrated to obtained brownish yellow powder.

Phytochemical analysis for all the extract were performed using standard procedure

Triterpenoids Test: Is a Libermann Buchard test- few drop of acetic anhydride were added to chloroform solution, shaken well. 01 ml of concentrated sulfuric acid carefully added from sides of test tube. A reddish brown coloration indicate the presence of sterols and Red ring indicates the presence of Triterpenoids.

Alkaloids Test: 0.5g of extract were diluted separately to 10ml with acid alcohol, boiled and filtered. Now 05

ml of the filtrate was added 2ml of dilute ammonia. 5ml of chloroform was added and shaken gently to extract the alkaloid base. The chloroform layer was extracted with 10ml of acetic acid. These treated with Mayer's Test- (Potassium Mercuric Iodide)- Few drop of Mayer's Reagent added to Chloroform solution. Creamy white precipitate indicated the presence of alkaloids.

Saponin Test: Frothing Test- 0.5g of extract was added 5ml of distilled water in a test tube. The solution was shaken vigorously and observed for a stable persistent froth. The frothing was mixed with 3 drop of olive oil and shaken well after which it was observed for the formation of an emulsion.

Tannin Test: Ferric chloride test- about 0.5g of the extract was boiled in 10ml of water in a test tube and then filtered. A few drop of 0.1% ferric chloride was added and observed for white precipitate indicate the presence of Tannin.

Flavonoids Test: a few drop of 01% neutral ferric chloride was added to a portion of an aqueous filtrate of the extract. A blackish green coloration that produced on standing indicate the presence of Flavonoids.

Carbohydrates Test: 100mg of methanolic and water extract were dissolved in little quantity of distilled water and filtrate. The filtrate was used to test the presence of Carbohydrates.

Fehling test- The filtrate was hydrolyzed with dilute HCL, neutralized with alkali and heated with Fehling solution A and B. The formation of red precipitate indicate the presence of carbohydrates.

Resins Test: 0.5g of the extract was diluted to 10ml with water and shaken for 5 minutes. The formation of turbidity indicates the presence of Resins.

Proteins Test: few ml of 0.1% of copper sulphate solution was added to the aqueous solution of extract containing 10% sodium hydroxide. The formation of violet or pink colour indicates the presence of proteins.

Table: Phytochemical Analysis of *Ipomoea batatas* in different extract.
[Present (+), Absent (-)]

Sr.No.	Test	Pet. Ether extract	Chloroform extract	Methanolic extract	Water extract
1	Sterol&Triterpenoids	+	+	+	+
2	Alkaloids	-	-	+	-
3	Saponins	-	-	-	+
4	Tannins	-	-	-	-
5	Flavonoids	-	+	+	-
6	Carbohydrates	-	-	+	+
7	Resins	+	+	+	-
8	Proteins	-	-	+	+

RESULT AND DISCUSSION

The phytochemical analysis carried by *Ipomoea batatas* in different extract showed the sterols and Triterpenoids were found to be present in petroleum ether, chloroform and methanol extract.

The flavonoids present in chloroform and methanolic extract. The alkaloids present in methanolic extract. Saponin found to be present in water extract.

Carbohydrates present in methanol and water extract. Resins are found to be present in petroleum ether, chloroform, methanolic extract. Proteins was found to be present in methanol and water extract. Tannin was totally absent in all the extract.

CONCLUSION

It has been conclude that the rhizome of *Ipomoea batatas* (L.), family Convolvulaceae, showed the presence of

Alkaloids, Saponin, Flavonoids, Carbohydrates, Resins, Proteins, these bioactive constituent carried a physiological action inside a human bodies. So this is to be important in medicinal purposes.

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