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Preliminary Phytochemical Analysis of *Dioscorea bulbifera* L.

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Abstract: ***In the present study, simple phytochemical screening procedures were carried out to find the various constituents present in the extract of petroleum ether, benzene, chloroform, acetone, ethanol of Dioscorea bulbifera L.tuber showing presence of Flavonoids, terpenoids, saponin, steroid and cardiac glycosides, carbohydrates. The plant tuber is used as ethnobotany and ethnoveterinary medicines in Nimar region.***

Keywords: *Dioscorea bulbifera*, phytochemical screening, ethnobotany, ethnoveterinary, Nimar

1. Introduction

Traditional knowledge of medicine has long been used since ages for curing various human ailments. The medicinal plants are useful for healing as well as for curing of human diseases and animal diseases because of the presence of phytochemical constituents .Phytochemicals are naturally occurring in the medicinal plants, leaves, vegetables and roots that have defence mechanism and protect from various diseases *Dioscorea bulbifera* L. commonly known as yam .Locally called as Gathalu, Kanda by tribals of Nimar, belonging to the family of Dioscoreaceae .Tuber of *Dioscorea bulbifera* L. has been taken for phytochemical screening. This tuber contains the plant food reserves, mainly starch, and it is often incorporated in the human diet. The tuber not only stores food but also many of the plants secondary metabolites, which are commonly referred to as anti nutritional factors. and due to this used against different diseases of human and animals. The study investigates on the prelims phytochemical screening of tuber in different extracts i.e. petroleum ether, benzene, chloroform, acetone, ethanol.

2. Material and Methods

Plant material is collected from different region of Nimar. Tuber were thoroughly washed, shed dried, and then grind to fine powder. About 25 gm. powder of plant material was subjected to successive soxhlet extraction with 250 ml.of various solvent ie. petroleum ether, benzene, chloroform, acetone, ethanol for 8 hours. Qualitative estimation of some major phytochemical constituents such as alkaloids, flavonoids, glycosides, saponin, tannin, protein, carbohydrates, phyosteroides was carried out by using standard methods.

Detection of Alkaloids
To a few ml of filtrate, few drops of Wagners reagent are added by the side of the test tube.Formation of reddish-brown precipitate indicates the presence of alkaloids.

Test for Glycosides
About 3ml extract was mixed with dil.H2SO4, boiled and finally filtered . Equal volume of chloroform was added to cold filtrates. The organic solvent was separated and mixed ammonia solution. Ammonical layer turned pink or red indicates the presence of anthraquinone glycosides.

Test for Carbohydrates
Extract was mixed with equal volume of Benidict's reagent in test tube. Solution was heated in boiling water bath for 5 min. It was turned green, yellow or red, indicates the presence of carbohydrates.

Test for Saponins
Small amount of extract was shaken with little quantity of water .If foam produced persists for 10 minutes indicates the presence of saponins.

Test for Tannin and Phenols
To 2-3ml extract mixed with few drops of 5% FeCl3 solution. Formation of deep blue black color indicates the presence of tannin and phenols.

Test for Flavonoids
Extract was treated with few drops of sodium hydroxide solution .intense yellow colored was formed It becomes colorless on addition of dilute acid,indicates the presence of flavonoids.

Test for Phytosteroids and Terpenoids
About 2ml extract was with mixed chloroform and then added 1-2 ml acetic anhydride and 2 drops of conc.H2SO4 drawn from the side of test tuber. Appearance of first red, then blue and finally green colour indicates the presence of steroids.

Test for Protein
About 3ml extract was treated with 4 % sodium hydroxide and few drops of 1% copper sulphate solution.Formation of purplish violet or pink colour indicated the presence of proteins.

3. Result and Discussion

The result of the preliminary phytochemical screening from tubers in table shows the presences of different phytochemicals prepared in different solvent extracts. Flavonoids, terpenoids, saponin, steroid and cardiac glycosides, carbohydrates are present in the test. Due to this

phytochemical compound the plant used against different human and animal ailments.

Preliminary phytochemical screening of various extracts *Dioscorea bulbifera* L.
Family- Dioscoreaceae

Plant parts	Test	Petroleum ether extract	Benzene extract	Chloroform extract	Acetone extract	Ethanol extract
Tuber	Alkaloids	+ve	+ ve	+ ve	+ ve	+ ve
	Glycosides	+ ve	+ ve	+ ve	- ve	+ ve
	Saponin	- ve	- ve	- ve	- ve	- ve
	Tanin and Phenolic compound	- ve	- ve	- ve	+ ve	+ ve
	Protien	- ve	- ve	- ve	- ve	- ve
	Carbohydrate	-ve	-ve	-ve	-ve	+ve
	Phytosteroides	- ve	- ve	- ve	- ve	- ve
	Flavonoids	-ve	-ve	-ve	-ve	+ve

4. Conclusion

The presence of various phytochemicals such as flavonoids, terpenoids, saponin, steroid and cardiac glycosides, carbohydrates in the tuber *of Dioscorea bulbifera* L.confirms that this plant species is a potent source for modern drugs using in different ailments of human as well as animals. The present study not only for preliminary contribution to the medico-botany investigation but due to the presence of such phytochemicals also shows a way for pharmacological research in future for the discovery of new sources of drugs for human and animals also.

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