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Phytochemical Screening of the Bark of Vernonia Amygdalina

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Abstract
The bark of vernoniaamygdalina has been selected for this work in order to ascertain the natural and medicinal endowment based on the ethnobotanical evidences of the plant. Phytochemical screening was carried out on the bark of vernoniaamygdalina (bitter leave), using both methanolic and chloroform extracts, this screening analysis confirmed the presence of saponins, alkaloids, cardiac glycosides, anthraquinones and phobatannins.
Keywords: Phytochemical Screening, Vernoniaamygdalina.

Introduction

Phytomedicine has been in existence for centuries ever before colonial administration and it is in use today with about 80% population depending on herbal medicine for its primary health values (Okigbo and Emeka, 2006). Vernoniaamygdalinahas beenselected to confirm the presence of some vital phytochemical constituents.
Phytochemicals are plant secondary metabolites that plants naturally produce to protect themselves against viruses, bacteria and fungi. They are sometimes referred to as phytonutrients and they exhibit diverse physiological and pharmacological tasks. They are non-nutritive substance with potent biological activities that help in strengthening human immune system and help to lower the risk of many chronic diseases and infections (sujatha et al, 2004).
Vernoniaamygdalina is a compositae, a small plant that grows predominantly in the tropical Africa.Popularly called bitter leave, a plant whose origin is from Nigeria (Anon, 2000).It's usually called bitter leave due to its bitter taste. The macerated leaves parts of the plant are used in making soup while the water extract serves as tonic drink for the prevention of certain illness. V. amygdalina has been reported for its use by wild animals e.g. Wild Chimpanzees for the treatment of parasite-related diseases in Tanzania(Huffman and Seifu, 1989).Diabetes has been reportedly treated with the tonic fromV. amygalina, not only to reduce the blood sugar drastically, it also help to repair the pancreas(Nanjo H.U,2006).

ALKALOIDS

Alkaloids are nitrogenous organic substances existing in combination with organic acid in great variety of plants and to which many drugs owe their medicinal properties. Majorly they are crystalline and non-volatile containing carbon, hydrogen, oxygen and nitrogen in dissimilar quantities. They produce characteristic physiological effects even at very small concentrations.. They are good inhibitors to many actions physiologically (Sengbusch, 2004), a lot of well-known poisons are of the group.

SAPONINS

Saponins are glycosides characterized by forming colloidal aqueous solution, which foam on shaking. Even in high dilution, they effects hydrolysis of the red blood cells.Saponin enhance the immune system to protect the human body against cancers and also lower cholesterol levels. A high saponin diet can be used in the inhibition of dental cares and platelet aggregation, in the treatment of hypercalciuria in humans and as an antidote against lead poisoning. Also, as a glycosides,saponin can have water biding properties for skin(John *et al,* 2004)

TANNINS

They are large class of amorphous substances present in plant. They have an androgen taste and precipitate gelatin. With iron salt, they give blue or green colour and are precipitated from water solution by proteins and by alkaloids. They are condensation product of various plants of which most important are pyragallon and catechol.(Osagie, 1998).

CARDIAC GLYCOSIDES

These compounds are characterized by the steroidal cardenolidesaglycone bonded at the C-3 position to a trisaccharide. Some leaves contain over 30 different cardiac glycosides of which the most important are digitoxin, gitoxin and gitatoxin. The most well-known use of these compound is in the production of digitalis used in the treatment of congestive heart failure (Sujatha, 2004), superventriculartachycardial and several heart conditions. As a cardiotonic agent which increase the tone of the heart muscle causing more effective emptying of a heart chambers.

MATERIALS USED AND METHODS

The plant material used were collected in June, 2009 around Federal University of Technology, Akure in OndoState,Nigeria. The sample were air dried four few days and powdered using a Philips blender. The powder kept in a clean container at ±37°C for further extractions. The method used here for the extractions was that described by Sofowora (1985). The infusion of each of the extracts were screened for the above compounds. **TEST FOR SAPONINS** The ability of saponin to produce frothing in aqueous solution was used as screening test for saponins. About 0.5g of the sample was shaken

with water in a test tube. Frothing which persist on warming was taken as preliminary evidence for the presence of saponins(Trease and Evans, 1985).**TEST FOR ALKALOIDS**About 0.5g of the extracts was stirred with 5ml of 1% aqueous hydrochloric acid on a steam bath. 1ml of the filtrate was treated with a few drops of Dragendroffs' reagent. Turbidity with this reagent was taken as evidence for the presence of alkaloids in the sample(Harbone, 1984)**.TEST FOR TANNINS** About 0.5g of the sample was stirred with 10ml of distilled water, filtered and ferric chloride was added to the filtrate. A blue black, green or blue-green precipitate was taken as evidence for the presence of tanins (Trease and Evans, 1985).**TEST FOR ANTHRAQUINONES**5g of the sample was shaken with10ml of benzene, filtered and 5ml of 10% ammonia solution was added to the filtrate the mixture was shaken and the presence of a pink, red or violet colour in the ammoniacal(lower) phase indicated the presence of free hydroxyl anthraquinone(Trease and Evans,1983)**TEST FOR CARDIAC GLYCOSIDES**The test for the cardiac glycosides as need be was screened using salkowski confirmatory test, about 0.5g of the test sample was dissolved in 2ml of chloroform. Sulphuric acid was carefully added to form a lower layer . A reddish brown colour at the interface indicated the presence of steroidal ring(Trease and Evans, 1985).**TEST FOR PHLOBATANNINS**Desposition of precipitate when an aqueous extract of the sample was boiled with 1% aqueous hydrochloric acid was taken as evidence of the presence of phlobatannins(Trease and Evans, 1985).**RESULTS AND DISCUSSION**The phytochemical constituents that were confirmed inthe bark of *vernoniaamygdalina* can serve as very important active components in the production of many drugs which can serve a resilient relief from manacles of avoidable deadly diseases. More also, these phytochemicals can serve crucial purposes in enabling man from activities of microbes by meddling with the cell division and the movements performed by microfilaments.**REFERENCES**Harbone, J.B.(1984): Phytochemical method . A guide to modern technology of plant analysis 2nd edition .Champion and Hal.London; 24,101-126.Osagie, A.U. (1998): Nutritional quality of plant foods. Published by post harvestreseach unit, University of Benin, Nigeria. 221-224, Sofowora, E.A, (1993): Medicinal plants and traditional medicine in africal. New York. John Wilsey and sons Ltd pg6-56.Trease, G.E and Evans, W.C(1985): Pharmacology, 13th edition,Bailliere, Tinall Ltd, London Pg 514-526.

TABLE The results below were confirmed in the bark of *vernoniaamygdalina*as phytochemical components.

S/N	Constituents	MethanolicExtr.	Chloroform Extr.
1	Saponnin	+	+
2	Alkaloid	+	+
3	Cardiac glycosides	+	+
4	Anthraquinone	+	+
5	Phlobatannins	+	+

(+) indicates presence (-) indicate absence

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