JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

PHYTOCHEMICAL SCREENING OF PARTHENIUMHYSTEROPHORUS LEAVES

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ABSTRACT: The objective of present study is phyochemical screening of partheniumhysterophorus leaves. It can be concluded from the present work that we cannot decline the allelopathic and negative impacts of parthenium hysterophorus on crop plants and livestock. This weed spread more rapidly in compare to other weeds. It covers many areas of agriculture lands as well as bare lands. At the present time of population explosion in India, it is necessary to use lands properly for agriculture as well as forestry. It is necessary that we can use every resource of nature for the improvement. We can control this weed through its man- agreement and it wouldbe happen when we have the proper knowledge about the beneficial and harmful effect of Parthenium. When we have proper knowledge of we can use it in different prospective which we have discussed above. This is not about the Parthenium although it should be apply for otherweeds also.

KEYWORDS: Extract, Drug, Evaluation, Phytochemical, Dosage form

INTRODUCTION:

Parthenium hysterophorus L. is an alien invasive weed which is cited as the seventh most devastating and hazardous weed. It is a fast maturing annual herb with a deep taproot and may eventually reach a height of 2m.

The seed of parthenium mainly disperses through flooding, water currents, movement of vehicles, machinery, livestock, grain, fodder, and to a lesser extent by wind.

Parthenium hysterophorus L. is originated as a result of natural hybridization between Parthenium confertum and Parthenium bipinnatifidum, It adapts various agro-climaticconditions and almost distributed itself to variety of growing environmental conditions.

Some of the countries where this plant is distributed includes India, China, Taiwan, Pakistan, Nepal, Sri Lanka, Bangladesh, Vietnam, Pacific Islands, Ethiopia, Kenya, Madagascar, South Africa, Somalia, Mozambique, Zimbabwe and several countries ofSouth and Central America .

This noxious weed is known for its adverse effect on environment, biodiversity, agriculture, and health of animals and human beings.

Impact on Biodiversity

Different investigations have shown the beats of Parthenium in the structure and diversity of plant communities Allelochemicals released from parthenium is capable ofchanging the physicochemical characteristics of the soil. It affects the mouture content temperature, pl, organic matter, carbon, nitrogen and phosphorus content and sol microbial activity 18-101 The change in property of the soil doc to introduction of allelochemicals affects the reproduction.

Growth and aval of other nearby plant. Generally parthenied to pose a serious threat in the bodovnity by maling new surroundings and by reducing or tally replacing the indigenous species where it causes total habitat change.

Impact an Agriculture

Parthenium is among well-known weed coming serious pete agriculture. It reduces agricultural production by pping agricultural yield from crops and animals. The adverseimpacts of parthenium hysterophorus stenphons on agriculture have been reported by several authors. These animals can encounter death, rashes on the body and ulders. al of skin pigmentation, allergic skin reacties dem danhes, aesix, pruritus Parthenium can also prychological behavior of animals During odder cattles, sheeps and guts are forcedpartem which can taint their meat and make diary milk unpalatable due to its irritating odor metabolites which may be introduced to the soil through leaching, root exalations and decay of allclephathic plants as parthenium This toxic chemical inhibits seed germination, radical growth and seedling growth which are responsible for the reduction in the distribution of other plants.

The major aliclochemicals present in parthenium includes sesquiterpene lactones mainly parthenin and phenolic acid as gallic acid, chlorogenic acal, filic acid, caffeic acid antic vanillic and, fumaric acid, hysterin, p-caumaricals.

Impact on Human

There are different investigations reporting the impact of Paren istenphors on human health Parthenium cs diffint health pro, blems vi, asthma, bronchiyis, Contact dermatitis, eye aration, hay fever, allergy etc.

The plant based, traditional medicine system continues to play an essential role in healthcare, for 80 percent of the world's inhabitants relying mainly on traditional medicines for their primary health care. Parthenium hysterophorus L, of the family Asteraceae (tribe: Heliantheae), is an erect and much branched annual or ephemeral herb. Parthenium hysterophorus Linn of Asteraceae family is used as remedy for a variety ofailments. It is commonly known as Congress Weed, Carrot Weed and Wild feverfew. The Scourge of India is an exotic weed that was accidentally introduced in India in 1956 through imported food grains and is now considered as one of the most feared noxious weed. The plant is used in the treatment of ulcerated sores, wounds, fever, anaemia and heart troubles. A decoction of the root finds use in treatment of dysentery and the lower

concentrations of extracts might find use as antifungal agent. It is applied externally on skin disorders and decoction of the plant is often taken internally as a remedy for a wide variety of ailments. This weed is considered to be a cause of a spectrum of clinical patterns: allergic respiratory problems, contact dermatitis, mutagenicity in human and livestock. On the other hand, P. hysterophorus confers many health benefits, viz remedy for skin inflammation, rheumatic pain, diarrhoea, urinary tract infections, dysentery, malaria, psoriasis, allergies, asthma, tinnitus, dizziness, nausea, vomiting, neuralgia. This plant traditionally used for the treatment of fevers, migraine headaches, rheumatoid arthritis, stomachaches, toothaches, insect bites, infertility, and problems with menstruation and labour during childbirth. Its allelopathic nature can drastically reduced the crop production and aggressive dominance of this weed threatens biodiversity. Attempts to control spread of the plant have so far not beensuccessful.

The use of plants as medicines predates written human history. The use of herbs to treat diseases is almost universal among non-industrialized societies and is often more affordable than purchasing expensive modern pharmaceuticals. The WHO (world health organization) estimated that 80 percent of the population of some Asian and African countries presently use herbal medicines for some aspect of primary health care.

Parthenium is native to the area surrounding the Gulf of Mexico, Southern North America, West indies, and cetral South America. The weed has now invaded more than 20 countries around the globe, including five continents and numerous islands. Recentdevelopments have indicated that African countries are at high risk of invasion.

Parthenium hysterophorus is a much-branched, short-lived (annual), upright (erect) herbaceous plant that forms a basal rosette of leaves during the early stage of growth. It usually grows 0.5-1.5 m tall, but can occasionally reach up to 2 m or more in height Mature stems are greenish and longitudinally grooved, covered in small stiff hairs (hirsute), and become much branched at maturity. The alternately arranged leaves are simple with stalks (petioles) up to 2 cm long and form a basal rosette during the early stages of growth. The lower leaves are relatively large (3-30 cm long and 2-12 cm wide)and are deeply divided (bi-pinnatifid or bi-pinnatisect). Leaves on the upper branches decrease in size and are also less divided than the lower leaves The undersides of the leaves, and to a lesser degree their upper surfaces, are covered with short, stiff hairs thatlie close to the surface (they are appressed pubescent). Numerous small flower- heads (capitula) are arranged in clusters at the tips of the branches (in terminal panicles). Eachflower- head(capitulum) in borne on a stalk (pedicel) 1-8 mm long. Colour changes to light brown when seeds are mature.

MATERIALS AND METHODS:

ISOLATION AND EXTRACTION OF LEAVES: Leaves of PARTHENIUM

HYSTEROPHORUS were collected in the month of AUGUST 2023 inside the NRI CAMPUS BHOPAL. The collected plant material were bought to the pharmacognosy laboratory on the same day. The leaves of the PARTHENIUM HYSTEROPHORUS were washed with water and air dried at room temperature for 7 days.

It was seen that the residual moisture of the leaves were removed properly. After that the leaves were powdered by using a mixing grinder and stored in air-tight container for future use. The required solvents such as Ethanol and Water were used for the extraction process.

Nearly about 15.7 grams of powdered were weighed for extraction process and the sample were closed with the filter paper and putted inside the thimble of the soxlet apparatus.

The extraction process were continued for 24 hours and getted the proper extract. After that the liquid extract were collected into the possible beaker and closed into the aluminium foil. After one week the sample were heated and all suitable tests were done.

Test Tubes

Soxlet apparatus

PHYTOCHEMICAL SCREENING

Qualitative estimation of Phytochemicals: Qualitative analysis of phytochemicals was done for carbohydrates, phenols, tannins, flavonoids, saponins, glycosides, cardiac glycosides and alkaloids

Test for Carbohydrates:

Fehling's test:
Equal volume of Fehling A and Fehling B reagents were mixed together and 2ml of it was added to crude extract and gently boiled. A brick red precipitate appeared at the bottom of the test tube indicated the presence of reducing sugars.

Benedict's test:
Crude extract when mixed with 2ml of Benedict's reagent and boiled, a reddish brown precipitate formed which indicated the presence of the carbohydrates.

Iodine test:
Crude extract was mixed with 2ml of iodine solution. A dark blue or purple coloration indicated the presence of the carbohydrate.

Test for Phenols and Tannins:
Crude extracts were mixed with 2ml of 2% solution of FeC13. A blue-green or black coloration indicated the presence of phenols and tannins.

Test for Flavonoid:

Alkaline reagent test:
Crude extracts were mixed with 2ml of 2% solution of NaOH. An intense yellow color was formed which turned colorless on addition of few drops of diluted acid which indicated the presence of flavonoids

Test for Saponins (Frothing test):
Crude extracts were mixed with 5ml of distilled water in a test tube and it was shaken vigorously The formation of stable foam was taken as an indication for the presence of saponin

1. Alkaloids:

Alkaloids content was measured by method suggested by Harborne. A suspension was prepared by dispersing 5 gm of the dried leaves in 10% acetic acid solution in ethanol and kept at 2800 for 4hrs which was further filtered through Whatman No. 42. Thereafter alkaloid was precipitated by concentrating the filtrate to one quarter of its original volume and drops of conc. Aqueous NI140H were added. Finally, the precipitate was washed with 1% ammonia solution and dried at 800C in the oven. The content of alkaloid was calculated and expressed as mg/g of sample.

2. Determination Of Tannins:

The finely powdered leaves and barks of Saraca indica were kept separately in a beakercontaining 20 ml of 50% methanol covered with parafilm and then heated at 800C in a water bath for 1 hr with continuous stirring. The extract was quantitatively filtered usinga double layered Whatman No.1 filter paper and rinsed with 50% methanol. 1 ml of sample extract was treated with 20 ml distilled water. 2.5 ml Folin-Denis reagent and 10 ml of 17% Na2CO3 for the development of a bluish-green colour and was allowed to stand for 20 mins. The absorbance was measured at 760 nm and the amount of tanninwas calculated by comparing it with a standard curve prepared in the range of 0-10 ppm.

3. Determination of Saponins:

100 ml Isobutyl alcohol was added to I gm of the finely powdered sample and stirred for 5 hrs 20 ml of 40% saturated solution of Magnesium carbonate was added to the mixture and filtered 2 ml of 5% FeC13 solution and 50ml volume of distilled water wasadded to Iml of colourless solution and keps for 30 mins for colour (blood red) developincut The absorbance of the samples as along with the standard were read at 380 nm and calculated in mg/g Standard saponin solution was prepared in the selerencerange of 0-10 ppm.

4. Determination of total phenols:

Five gms of the powdered leaves were boiled with 50 ml of ether for 15 mins and distributed in the ratio 12 (extract distilled water). 2ml of ammonium hydroxide

followed with 5ml of pentanol was added to it and incubated at the room temperaturefor 30mins.

Test Tubes

RESULTS AND DISCUSSION

The present study revealed that the various phytochemical components such as carbohydrates, flavonoids, saponins, phenols, tannins, glycosides and steroids, are present in the leaves of Parthenium Hysterophorus, have many medicinal uses and is a nontoxic traditional medicinal plant.

PHYTO CONSTITUENTS	AQUEOUS EXTRACT	ACETONE EXTRACT	METHANOL EXTRACT	ETHANOL EXTRACT
ALKALOIDS	+++	+++	+++	+++
CARBOHYDRATES	+++	+++	+++	+++
CARDIAC GLYCOSIDES	+++	+++	+++	+++
FLAVONOIDS	+++	---	+++	+++
PHENOLS	+++	---	---	---
AMINO ACIDS	+++	---	+++	+++
SAPONINS	+++	+++	+++	+++
TANNINS	---	+++	+++	+++
TERPENOIDS	---	---	---	---

COUMARINS	---	---	---	---

SUMMARY AND CONCLUSION

It can be concluded from the present review article that we cannot decline the allelopathic and negative impacts of parthenium hysterophorus on crop plants and livestock. This weed spread more rapidly in compare to other weeds. It covers many areas of agriculture lands as well as bare lands. At the present time of population explosion in India, it is necessary to use lands properly for agriculture as well as forestry. It is necessary that we can use every resource of nature for the improvement. We can control this weed through its man- agreement and it wouldbe happen when we have the proper knowledge about the beneficial and harmful effect of Parthenium. When we have proper knowledge of we can use it in different prospective which we have discussed above. This is not about the Parthenium although it should be apply for otherweeds also.

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