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Impact and Management of *Parthenium hysterophorus Linn.*

Dr.Naushaba Khatoon

Department of botany, Patna university patna-5

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ABSTRACT

Parthenium hysterophorus linn is a noxious annual weed, which often called as congress grass. Its high reproduction potential , fast growth rate, allelopathic potential and unpalatable to cattle make it capable of rapid spread all over the world. It affects human health,causes skin diseases and allergic reactions, also affect livestocks and reduces yield of crops in the affected field. The prime objective of this paper (= review) is to provide general information about the ill effects , and management of Parthenium in the stading crop fields. Integrated approach should be the better way to manage this noxious weed.

1. Introduction

Parthenium hysterophorus Linn. (ASTERACEAE) is native to north and south America (Picman and picman, 1984). In India, it is locally known as 'Gajarghas' Parthenium was introduced in India in seed form as a contaminant of food grains imported from mexico. It is regarded as one of the worst weeds because of its invasiveness, potential for spread and economic as well as environmental impacts (Aneja et al. 1991; Auld et al. 1983).It was first time reported from india in Pune of Maharashtra. The flowers of this plant are arranged in capitulum, a kind of racemose type of inflorescence. The fruit forms cypasela, a kind of indehiscent dry, with persistent pappus form of calyx.

It is widely found growing in almost all parts of the world. It was first introduced due to contaminated PL 480 wheat impoted from the United states of America in 1950 (Sushil kumar and Varshery, 2010; Sushil kr ; 2012). The spread of Parthenium has been reported from almost all states of india in varying intensity. The overall average infestation of Parthenium is varied (Table- 1).

Parthenium possesses an enormous ability to grow and establish fast (Mo nika, 2014). It completes its life cycle within 3 - 4 months and it shows three to four generations in a year which helps in quick spreading and generation of advese impact on the surrounding vegetation (kolhi et al ;2006) Parthenium seeds are dispersed through water current animals and the movement of vehicles. It bears short life- cycle grow very quickly and grow under different habitats. (Dogra et al ; 2011)

2. Causes Of Rapid Spread

- High reproductive potential
- Fast growth rate
- Alleopathic potential
- Unpalatable to animals.
- Cypsela, with persistent pappus.

IMPACT OF Parthenium hysterophorus Linn:

- On crop production –

Due to the invasive capacity and inhibitory role of allele chemicals, phenolics and sesquiterpene lactones, mainly Parthenium, it inhibits the germination and growth of plants (= cereals , vegetables, pasture grasses and other plant species) in a severe manner (Veena et al ; 2012). In india Parthenium hysterophorus causes a yield decline of about 40% in standing agricultural crops (Khosla and sobti,1981). Maharajan et al , 2007 showed that increase in concentration of extract was invariably associated with decrease in germination and seeling characteristic of the crop. The weed affects nodulation in legumes due to inhibitation of activity of nitrogen fixing and nitrifying bacteria (eg. Rhizobium)

- Impact on human and animal health

In india, this weed is considered as one of the greatest source of dermatitis, asthma, eye irritation and sinusitis (=hay fever) types of diseases. Its pollen in contact with body causes swelling and itching of mouth and nose .

Consumption of its root causes excessive water loss from our body (oudhia and Tripathy,1998)

3. Management and control:

Physical :

It is most cost effective method for control. It includes several cultural practices such as preventing introduction of its seeds by keeping clean the equipment livestock animal feed , people and vehicles , preventing physical spread of the seed by cultivators , shoes, tires, machinery (Robert , 2011)

Chemical Control:

A large number of chemicals have been tried for controlling its spread (Sushil kumar, 2012) who said that chemical treatment can only keel existing population of the sites but cannot prevent the entry of the seeds coming on treated side from neighbouring places . There are many herbicides heve been tested against Parthenium hysterophorus in cropped and noncropped condition (Mishra and Bhan, 1996 ; Brar and Walia 1991 ; Sushil kumar, 2012) complete vegetation management including Parthenium glyphosate (1 – 1.5 kg / hactere).

Biological Control:

Biological control is an eco- friendly and effective means of control or mitigating pests like microbial pathogens, insects and botanicals (Ray and Gour,2012 ; Watson and Wymore,1990)

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4. Materials and methods

In classis control methods obligate parasites, especially rust fungi , are the first choice because they exhibit narrow host ranges, high reproductive capacity and efficient aerial dispersal (Dhileepan and Senaratne ,2006 ; Stamp's 2011) .

Table:-Showing spread and infestation level of Parthenium among different states of india.

States	Infestation level
1. Andaman and Nicobar island	low
2. Arunachal pradesh	low
3.Assam	medium
4. Chandigarh	medium
5. Delhi	high
6. Karnataka	high
7. Haryana	high
8. Bihar	high

Table:-2 Showing effect of Parthenium in human health

Contact dermatitis	Seasotion eruption of exposed skin
• Eczema	Chronic lichensified eczema
• Allergic reaction	Cracks all over the sole
• Fatigue	General weakness, skin eruption
• Fever in cattle	Inflamed fever in cows udder and rashes.

5. Results and discussion

The noxious Parthenium hystrophorus grows in a wide variety of habitats and causes changes in above ground vegetation as well as in below ground soil nutrients . Awarness is required that how this weeds look like , how the seeds are spread from one place to another and the possible methods of control should be taught to people all over the world.

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