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BIO-CONTROL OF *PARTHENIUM*BY *Zygogrammabicolorata*(TRISHUL)

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ABSTRACT

Parthenium hysterophorus is an annual herbaceous plant which have potential to damage agriculture and economic crops and also harmful for the environment and public health .this weed also caused serious human health hazard causing allergic dermatitis and respiratory this plant commonly called congress grass in India has been considered as one of the worst weeds responsible for causing health problems in men and animals and become loss in productivity of plat of agriculture crop and also disturb the plant biodiversity.Agriculture and biodiversity of the region For to control with biological method which involved like mechanical and second is with help with the introduction of leaf feeding beetle *Zygogramma bicolorata* it has successfully. The paper give details recordsand current status of this weed in Sangamner region in and its method of effectiveness of the biocontrol agent in controlling *Parthenium*have been discussed.

Keywords:*Parthenium*, Biological control, *Zygogramma bicolorata*,

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INTRODUCTION

Parthenium hysterophorus L. (Family: Asteraceae the common nameis congress grass, is an annual, erect and profusely branched herb. Height is about 35-200 cm, leaf simple. Flower is white, corolla obsolete, stamen-absent, and stigma-parted, style short, ovary oval, Fruit cypsela, each flower head bearing 5 cypsela, flat and triangular in shape *Parthenium* weed is a prolific seed producer can produce number of seed.*Parthenium hysterophorus* has potential to damage agriculture and economic crops and also harmful for the environment and public health.This weed also caused serious human health hazard causing allergic dermatitis and respiratory responsible for causing health problems in men and animals and become loss in productivity of plat of agriculture crop and also disturb the plant biodiversity.Agriculture and biodiversity of the region. For to control with biological method which involved like mechanical and second is with help with the introduction of leaf feeding beetle *Zygogramma bicolorata* has successfully. The paper give details recordsand current status of this weed in Sangamner rejoin and its method of effectiveness of the biocontrol agent in controlling *Parthenium*has been discussed.

Botanical characteristics

Parthenium does not reproduce vegetative from plant parts, the only method of reproduction and spread by seed in rainy session plants can flower and set seed four weeks after germination. Buried seeds have been found to last much longer than seed on the soil surface. *Parthenium* weed can produce flowers and seed at any time of the year under favorable conditions. Flowering occurs after one month of germination. The fruit is called cypsela, each flower contains five seeds which are wedge shaped, black, 2mm long with thin white scales this weed may expand their population very rapidly and create mono-specific thickets and also spoils the biodiversity.

Seed dispersal:

The seeds are mainly dispersed through water currents, animals and the movement of vehicles, machinery and wind. Most of the long distance spread is through vehicles, farm machinery and flooding. Germination of *Parthenium* seeds can occur between 15^0 to 30^0 C

the optimum temperature for germination being 22 o to 25^0 C. Persistence tests demonstrated that more than 70% of *Parthenium* seeds buried at 10 cm below the soilsurface survived for at least 2 years,. Seed viability for 20 years.

Damage

Parthenium degrades natural ecosystemsand it hasallelopathic effect so there is almost no attack of insect and diseases on it and ultimately it spread rapidly It aggressively colonizes disturbed sites and reduces pasture growth and depresses forage production. Its pollen is known to inhibit fruit set in many crops. The germination and growth of indigenous plants are inhibited by its allelopathic effect. In man, the pollen grains, air borne pieces of dried plant materials and roots of *Parthenium* can cause allergy-type responses like hay fever, photodermatitis, asthma, skin rashes, peeling skin, puffy eyes, excessive water loss, swelling and itching of mouth and nose, constant cough, running nose.

Problems created by *Parthenium* weed

Parthenium weed affects the viability of primary production and as well as causing health problems for humans and animals

Impact on agricultural viability

Parthenium weed is a serious problem on pastures and crops. Aqueous extracts of shoot, leaf, flower and root of *Parthenium* weed exhibited allelopathic effect on soybean and haricot bean seed germination, germination rate, and shoot and root growth and dry matter production of seedlings

Impact on biodiversity

It is a threat to the biodiversity of the country. It is known to exert significant impact on the natural communities as they cause their displacement and hence exert imbalance in the natural and agricultural ecosystem

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Impact on Animal health

All parts of the *Parthenium* plant at any stage of growth are toxic to humans and animals

METHODS

Methods to control weed

Cultural practices

Manual uprooting or hoeing.

Mechanical control

Ploughing of *Parthenium* before flowering and seed setting is the most effective in wet soils.

Chemical control

A large number of chemicals have been sprayed to control this weed.

Biological control

Biological control of *Parthenium* through fungi

Biological control through microorganism

Pathogen attacking both *Parthenium* and crops

Pathogenic virus on *Parthenium*

Biological control through insects

Collection of *Zygogramma*:

The beetles were collected on *Parthenium* weed in its natural environmental conditions *Zygogramma bicolorata ar*e widely used in several countries to manage *Parthenium*. Their moth significantly reduced flower and seed production of the weed. Leaf feeding beetle and the stem galling moth are widely used in several countries to manage *Parthenium*. Their moth

significantly reduced flower and seed production of the weed are found most effective for its control. However insect which remain active during most of the year would be more helpful in managing the weeds in general.

CONCLUSION

It is the best method for to control the *Parthenium hysterophorus* weed by *Zygogramma bicolorata*. To stop health problems in men and animals and also increases the productivity of plats of agriculture crop. To maintain the plant biodiversity. Biological method which involved the mechanical and second is with help with the introduction of leaf feeding beetle *Zygogramma bicolorata,* it has successfully.At the final it is concluded that development of new cost effective and persistent herbicides with less residual effects is necessary for its control.Thisweedalso use as green manure, growth inhibitor in medicines should be promoted.And use for mulching, producing biogas, paper and making compost & as growth inhibitor.

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