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WEEDS : A POTENTIAL SOURCE FOR HUMAN WELFARE

Supriya R. Nikam[1] and Dr. D. D. Namdas[*]

Research Scolar , Department of Botany and Plant Protection, Sadguru Gadage Maharaj College ,Karad,Maharashtra 415-110.

Research Guide , Department of Botany and Plant Protection, Sadguru Gadage Maharaj College ,Karad,Maharashtra 415-110.

Weeds in general –

Weeds are unwanted plant grows in a place where some other plants are also growing or no other plant has to grow at all. Weeds are unwanted , harmful, dangerous or economically detrimental .Weeds are found common in both kharip and rabbi season [6]. Weed flora of Sangli district is very rich with family Asteraceae and Poaceae [9] . Weeds are native or non native plants that grow and reproduce aggressively [7]. Weeds are plants which do not have any specific requirement with respect to climatic conditions, nutrients ,space .They grow at disturbed and inhabited places. Weeds are useful to human beings as food ,erosion control ,medicine ,aesthetic value, shelter, supply of organic matter and mineral nutrients to the soil [1].They posses a large number of medicinal properties which otherwise are not explored. These medicinal properties are by the virtue of their phytochemicals that they are used as therapeutic agents. Traditional healers recognized their medicinal potential and have utilized them for the treatment of human ailments .Weeds are also found to be resistant to most of the microbial diseases when compared to the cultivated crops [10] . Although some weeds have some beneficial impacts to man , his environment and livestock [2] .Weeds are an important source of medicines for indigenous people and have a highly significant over -representation in indigenous pharmacopoeias about other plants [2].Sometimes weeds can serve for both medicine and food ,while some serve as food because of their nutritional contents. The overlapping roles of wild plants as food and medicine have been discussed by various authors [2].

Importance of weeds –

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

Many weeds protect nearby plants from insect pests from their allelopathy . Many scientists have highlighted the significance of *Euphorbia* species against insects, viruses ,fungus and nematodes [2] .Some beneficial weeds repel insects and other pests through their smell. Eg. *Allium* and wormwood [2].There is increasing evidence to support the hypothesis that weeds are relatively high in bioactive secondary compounds and are thus likely to hold promise for drug discovery [2]. paper no. 2 ref .no. 64 carried out ethno-botanical exploration to find out the medicinal values of common weeds present in crops fields and different places like crop rice ,vegetables and other localities of Koraput ,India .Analysis of 101 plant species from which 119contemporary pharmaceuticals are derived shows that at-least 36 of these plants are considered weeds.[paper no. 2 ref.no. 66] Weedy cereal crops can be cut when green ,providing good livestock feed and reducing weed seed return in those areas [

There is great scope of many weeds for phytoremidation. More weeds are required to be identified for absorbing different type of pollutants from water so that treated water could be used in irrigation .Rsearch need is to isolate the concentrated metals from the weeds and use them for different purposes. Many weeds can be utilized for essential oil, gum and dye production ,Efforts should bemade for commercial utilization of these weeds .There is scope of using weeds for various value added products, composite ,furniture and hand made paper etc. Many woody weeds may be converted into compacted fuel in the form of briquettes. There is need to popularize these technologies among the resource poor farmers/families to generate additional income .Many home using materials like mats ,chatai /hogia pati ,sweeping materials, garlands, thatching materials can be prepared. Many weeds are good indicator of global climate changes.

ca-be-valuable -]. [2]

Theseshould be identified and utilised for the purpose. There is vast scope of microbesin weed management but so far little work has been done .Intensive research is

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

required in this direction. Weeds check wind ,water and soil erosion . Some of theWeeds are used as leafy vegetables . Eg.-*Amaranthus viridis* (Math) ,*Portulaca*spp. (Ghol), *Launia procumbens* (Pathari) . Some of the weeds have medicinal value . E. g. - *Argemone Mexicana* –Useful against skin disease , *Eclipta erecta* (Maka) –against cough and as hair oil. Some of the weeds are used for religious purpose. E.g. Hariali, Aghada, Maka etc .Some of the weeds serves as ornamental and hedge plant . E.g. *Lantana camera* ,*cactus* ,*Portulaca* [3]. **Weeds Check Wind, Water and Soil Erosion:** Weeds growing on desert lands, waste lands and sloppy fields lower wind and water erosion and also help for protection of the environment. **Reclamation of Alkali Soils,** The application of powder of the weed piwala dhotra (*Argemone Mexicana*) is useful for reclamation of alkali soils. **Some of the Weeds Serves as Ornamental and Hedge Plants:** Ghaneri (*Lantana camara*) and *Cactus* – Used as ornamental andhedge plants. Ghol(P*ortulaca* spp) – For beautiful flowers **[internet].The weed can be used on a large scale for various** applications .Nutritionally rich compostcan be obtained from the weed by compostng it formally or by using technique of vermicomposting ,which can be employed for increasing productivity of wide variety of agriculturally important crops .Practice of green manuring utilizing parthenium weed has also proved an effective tool for raising fertility of cultivated land soil [5].Weeds are useful to human beings as food ,erosion control
,medicines ,aesthetic value ,shelter ,supply of organic matter and mineral nutrients to the soil [1]

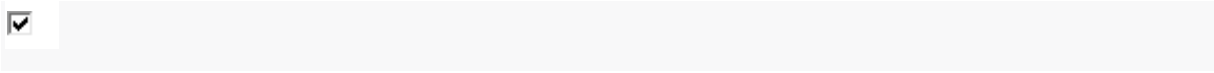
***Parthenium* history /origin-**

Parthenium hysterophorus is a species of flowering plant in the family Asteraceae. It is native to the American tropics. Common names include Santa-Maria, Santa Maria feverfew, white top weed, and famine weed. In

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

India, it is locally known as carrot grass, congress grass or *Gajar Ghas* It is a common invasive species in India,



Parthenium hysterophorus invades disturbed land, including roadsides. It infests pastures and farmland, causing often disastrous loss of yield, as reflected in common names such as *famine weed*. In some areas, heavy outbreaks have been ubiquitous, affecting livestock and crop production, and human health. As an invader it first appeared as a contaminant in imported wheat. The plant produces allelopathic chemicals that suppress crop and pasture plants, and allergens that affect humans and livestock. It also frequently causes pollen allergies. A study published in 2021 further showed that the plant could promote malaria by supplying much appreciated food and shelter to mosquitoes in Eastern Africa. It is being investigated as a means of removing heavy metals and dyes from the environment, control of aquatic weeds, commercial enzyme production, an additive in manure for biogas production, as a biopesticide, and as green manure and compost.The species has been listed as an invasive alien species of Union Concern. This means it is illegal to import or sell this species in the whole of the European Union.*P.hysterophorus* ,a weed growing wild in many parts of India ,was mixed with cattle manure at a 10%level and allowed to digest anaerobically at room temperature.[GunaseelanV N(1987)]

Taxonomy /Morphology

Parthenium hysterophorus L. belongs to family Asteraceae . Errect , profusely branched herbs .Leaves usually lanceolate to pinnatifid. Heads peduncled in terminal , lax, cymose cymes. Involucral bracts often 10,2-seriate. Central florets male ,with tubular white corolla .Achenes compressed, black . Pappus absent [Flora of Kolhapur district] .It is herbaceous invasive weed that is believed to be

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Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

originated in tropical Americas,now occurs widely in India ,Australia and East Africa . It is an annual procumbents ,diffused leafy herb,0.5-2.5m tall ,bearing alternate ,pinnatified leaves,belonging to the family Compositae [8]

Potential/ role of *Parthenium* plant

Parthenium hysterophorus is a noxious weed in America, Asia, Africa and Australia. This weeds is considered to be a cause of allergic respiratory problems,dermatitis, mutagenicity in human and livestock .Crop production is drastically reduced owing to its allelopathy. Also aggressive dominance of this weed threatens biodiversity . *Parthenium hysterophorus* confers many health benefits, viz remedy for skin inflammation , rheumatic pain, diarrhoea, urinary tract infections, dysentery, malaria and neuralgia [4].

Role of *P. hysterophorus* in enhancement of crop productivity[11].

Allelopathy can be used to increase crop production at minimal expenses and to diminish the current reliance on synthetic agrochemicals that degrade the environmental quality. The allelochemicals can be exploited as herbicides, insecticides, nematicides, fungicides and growth regulator. Pesticidal potential has been established in terms of ovicidal and anti-fleedant effects [12]. The allelochemicals also provide defence against herbivorous predators. Kishor et al.(2010) prepared compost of *P. hysterophorus* in 14 weeks and assessed its manure value. Compost from this weed on application in soil enhanced its moisture level more than nitrogen, phosphorus and potassium (NPK) alone. Anaerobic digestion of *parthenium* dried solids biodegrades the plant growth and conserves the NPK content. This can be applied as organic manure (Gunaseelan 1998). Javaid (2008) used *P. hysterophorus* weed as green manure for maize and mung bean production. The highest root and shoot biomass in maize was obtained in 3% green manure treatment, which was significantly greater than that obtained in the control and equivalent to that obtained in the NPK fertilizer treatments. The

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

effect of *P. hysterophorus* green manure and EM (effective microorganisms), a biofertilizer, on wheat *(Triticum aestivum* L.) cultivation was studied. Highest root biomass was recorded in 3% green manure-amended treatment. Spike length, number of grains per spike and grain yield gradually increased by increasing thequantity of green manure. There was 43–253% increase in grain yield over control due to various green manure treatments as compared with 96% increase due to NPK fertilizers over control (Javaid and Shah 2010). *Parthenium hysterophorus* being rich in N, P, K, Ca, Mg and chlorophyll content is ideally suited for composting. Ordinary *P. hysterophorus* compost cannot sufficiently reduce the allelopathic effects of high levels of parthenin and phenolics, which impede the early growth, development and dry matter yield of both monocot and dicot plants. For maximum exploitation of the nutrient contents of *P. hysterophorus,* without incurring the ill effects of phenolics, millipede Harphaphe haydenianamediated novel composting procedure was tried. This milli-compost (MC) was more effective than ordinary *parthenium* compost (OPC) (Apurva et al. 2010). So, if tapped properly, this weed can contribute to agronomic processes.

Bioremediation of heavy metals and dyes by *P. hysterophorus*

Environmental pollution with heavy metals has become a global phenomenon. Nickel (II) is present in the effluents of silver refineries, electroplating, zinc base casting and storage battery industries. At higher concentrations, nickel causes cancer of lungs, nose and bone. Cost effective alternative technologies or absorbents are needed for the treatment of metal-contaminated wastewaters especially in developing countries like India. Lata et al. (2008) studied the adsorption capacity of *P. hysterophorus* for the removal of nickel from aqueous solution by varying parameters such as agitation time, Ni(II) concentration, adsorbent dose and pH. The dried biomass of *P. hysterophorus* is used for carbon preparation by mixing it with concentrated sulphuric acid (1:1.5 w/v ratio) and keeping it at 120C for 24 h, followed by washing and drying. This sulphuric acid-

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

treated carbonized *Parthenium* (SWC) could be an effective, easily available and low-cost adsorbent for the removal of Ni(II) from dilute aqueous solution.Cadmium (Cd) is widely used in electroplating, plastic manufacturing, metallurgical processes and industries of pigments and Cd/Ni batteries. However,it is extremely toxic even in low dosages and responsible for causing renal disorder, high blood pressure, bone deformity and destruction of RBCs. Because of bioaccumulation, Cd (II) is considered as a priority pollutant by the US Environmental Protection Agency. Ajmal et al. (2006) studied the efficiency of dried powder of *P. hysterophorus* as an adsorbent for removing Cd(II) from wastewater. Batch process was employed for adsorption of Cd(II) ions by dried and crushed mass of *P. hysterophorus.* as substrate for enzyme production Xylanasesare hydrolytic enzymes that cleave xylans. The end products of xylan degradationhave industrial applications for biofuel, artificial sweetener, animal feed production, baking and textile industry, clarification of fruit juices and coffee extraction. Besides, there has been an increasing interest in using xylanases for ecofriendly bleaching of pulp in paper industries. The potential of *P. hysterophorus* as low-cost raw material for xylanase production was studied by Dwivedi et al. (2009). They investigated xylanase production from a mutant of *Penicillium oxalicum* in submerged fermentation. Considerably higher level of the enzyme production in medium containing *P. hysterophorus* confirms the feasibility of using this cheap resource as an alternative carbon source to save costs of the enzyme production process (Dwivedi et al. 2009). *P. hysterophorus* as additive with cattle manure in biogas productiophorus. Atomic absorption spectrophotometry (AAS) of the filtrate *show P. hysterophorus* as additive withcattle manure in biogas production In the wake of oil crisis, energy generation from biowastes by anaerobic digestion has attracted immense attention. Energy crops are likely to be future sources of digester feed stocks for methane generation. *Parthenium hysterophorus* was mixed with cattle manure at a 10% level and allowed to digest anaerobically at room temperature in 3-l batch

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

digesters. The chemical changes during the course of digestion and the effect of digested slurry (inoculum) on biogas production were investigated and significantincrease in methane content was achieved. The methane content of the gas variedbetween 60 and 70% (Gunaseelan 1987).

Bioremediation of heavy metals and dyes by *P.hysterophorus*.

Environmental pollution with heavy metals has become a global phenomenon. Nickel (II) is present in the effluents of silver refineries, electroplating, zinc base casting and storage battery industries. At higher concentrations, nickel causes cancer of lungs, nose and bone. Costeffective alternative technologies or absorbents are needed for the treatment of metal-contaminated wastewaters especially in developing countries like India. Lata et al. (2008) studied the adsorption capacity of *P. hysterophorus* for the removal of nickel from aqueous solution by varying parameters such as agitation time, Ni(II) concentration, adsorbent dose and pH. The dried biomass of *P. hysterophorus* is used for carbon preparation by mixing it with concentrated sulphuric acid (1:1.5 w/v ratio) and keeping it at 120°C for 24 h, followed by washing and drying. This sulphuric acid-treated carbonized *Parthenium* (SWC) could be an effective, easily available and low-cost adsorbent for the removal of Ni(II) from dilute aqueous solution. Cadmium (Cd) is widely used in electroplating, plastic manufacturing, metallurgical processes and industries of pigments and Cd/Ni batteries. However,it is extremely toxic even in low dosages and responsible for causing renal disorder, high blood pressure, bone deformity and destruction of RBCs. Because of bioaccumulation, Cd (II) is considered as a priority pollutant by the US Environmental Protection Agency. Ajmal et al. (2006) studied the efficiency of dried powder of *P. hysterophorus* as an adsorbent for removing Cd(II) from waste

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Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

water. Batch process was employed for adsorption of Cd(II) ions by dried and crushed mass of *P. hysterophorus*. Atomic absorption spectrophotometry (AAS) of the filtrate showed that P. hysterophorus is an effective adsorbent over a widerange of initial Cd(II) concentration .

Eradication of weeds by *P. hysterophorus*

Salvinia (*Salvinia molesta* Mitchell), water lettuce (*Pistia stratiotes*) and water hyacinth (*Eichhornia crassipes*) choke off water bodies suffocating aquatic creatures. Pandey (1994) studied the effect of dry *P. hysterophorus* L. leaf powderon these menacing weeds. The treatment caused wilting and desiccation of above-water parts of these floating plants. With the increasing concentration of *P. hysterophorus* extracts, the seed germination and growth of lovegrass(Eragrostis)decreased significantly (Tefera 2002).

***P. hysterophorus* as substrate for enzyme production**

Xylanases are hydrolytic enzymes that cleave xylans. The end products of xylandegradation have industrial applications for biofuel, artificial sweetener, animal feed production, baking and textile industry, clarification of fruit juices and coffee extraction. Besides, there has been an increasing interest in using xylanases for ecofriendly bleaching of pulp in paper industries. The potential of *P. hysterophorus* as low-cost raw material for xylanase production was studied by Dwivedi et al. (2009). They investigated xylanase production from a mutant of *Penicillium oxalicum* in submerged fermentation. Considerably higher level of the enzyme production in medium containing *P. hysterophorus* confirms the feasibility of using this cheap resource as an alternative carbon source to save costs of the enzyme production process (Dwivedi et al. 2009).

***P. hysterophorus* as additive with cattle manure in biogas production**

In the wake of oil crisis, energy generation from biowaste by anaerobic digestion has attracted immense attention. Energy crops are likely to be future sources of

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

digester feed stocks for methane generation. *Parthenium hysterophorus* was mixed with cattle manure at a 10% level and allowed to digest anaerobically at room temperature in 3-l batch digesters. The chemical changes during the course of digestion and the effect of digested slurry (inoculum) on biogas production were investigated and significant increase in methane content was achieved. The methane content of the gas varied between 60 and 70% (Gunaseelan 1987). *Parthenium hysterophorus* should be seriously considered as a substrate for the production of biogas in India via anaerobic digestion, considering the abundance of this weed and large quantity of livestock. *P. hysterophorus* for welfare of livestock.

***P. hysterophorus* for welfare of livestock**

Parthenium hysterophorus can be used as a flea-repellent for dogs (Maishi et al. 1998). This weed is a valuable source of potash, oxalic acids and high-quality protein (HQP) which can be used in animal feed (Mane et al. 1986).

***Parthenium* extract based drugs in pharmaceutical pharmacological and industrial application of these drugs[8]**

Antioxidant:

Free radicals are considered to be causative agent for many diseases. Restriction on the use of synthetic antioxidants is being imposed because of their carcinogenicity (Ames et al., 1993). So, natural antioxidants have gained interest of scientists. The methanolic extracts of *P. hysterophorus* showed the high antioxidant effect as compared to Stevia rebaudiana (Ramos et al., 2001; Khan et al., 2011. Therefore, this plant can be an effective potential source of natural antioxidants. After exploring Parthenium for its active antioxidant constituent, a strong natural antioxidant can be made commercially available.

Antitumor:

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

The methanolic extract of *P. hysterophorus* flower revealed antitumor activity in host mice bearing transplantable lymphocytic leukemia . Level of neoplastic markers like glutathione, cytochrome P-450, glutathione transferase and UDP- glucuronyl transferase altered substantial thereby slowing down the development of tumors and increased survival (Mukherjee and Chatterjee, 1993).

Antimicrobial:

Parthenium hysterophorus exhibited antibacterial and antifungal activity against

S. aureus, P. aeruginosa, *E. coli, A. niger*, C. albicans and *F. oxysporum,* respectively (Table 2). In vivo trials revealed that ethanolic extract of P. *hysterophorus* flowers also exhibited trypanocidal activity by significantly reducing ($p<0.01$) means parasitaemia without any side effect on experimental animal Talakal et al. 1995; Khan et al., (2011) .

Larvicidal:

Studies also demonstrated larvicidal potency of root and stem extract against larvae of A. aegypti and their benefits as new group of mosquito larvicides. Active constituent's level of *P. hysterophorus* extract may be responsible for the variability in their potential against A. aegypti (Kumar et al., 2011) . The leaf extract showed the most significant effect in causing a dose dependent decline in both the lifespan and progeny production of adults of the mustard aphid *(Lipaphis erysimi)* (Kalt.) (Sohal et al., 2002). Further research is needed to identify these larvicidal components and bring them to effective state.

Other benefits:

The studies on rat also confirmed the role of its leaf extract as proven and promising new depolarizing neuromuscular junctional blocker (Vijayalakshmi etal., 1999) so, can be used as an alternative of anticholinesterase agent like neostigmine.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

Parthenium's compost:

The *P. hysterophorus* L. is a rich source of micro and macro-elements like N, P,K, Ca, Mg and chlorophyll and thus preferably suited for composting (Kishor et al., 2010; Khan et al., 2011). But, its higher phenolic content impedes the early growth, development and dry matter yield of plants. However, combined compostof *Parthenium* and *Eichhornia crassipes* (a water weed, rich in polyphenol oxidases) resulted in significant reduction in phenol, organic carbon contents and C/N, C/P ratios. This revealed that composting of *Parthenium* with *Eichhornia* not only reduced the allelopathic effect of *Parthenium* but also increased its available nutrient content. Further, combined composting of Parthenium and *Eichhornia* is a remedy for controlling these weeds and a way to healthy or vermicompost of Parthenium, ganic farming (Khaket et al., 2012).

has also been effectively explored for using its nutrients and overcoming the weed toxicity (Yadav and Garg, 2011). In vermicompost, significant decrease inphenol content, C:N ratio and heavy metals content was observed. Compost prepared in presence of Harphaphe haydeniana resulted in higher nutrient and lessallelochemicals content. It exerted more beneficial effects on growth and development of *Triticum aestivum* compared to ordinary *Parthenium* compost (Apurva et al., 2010). The results revealed a higher increase in N, K, P and considerable decrease in organic carbon, C/N, the C/P ratio in *Parthenium* compost, which can be beneficial for crops (Table 2).

Herbicide:

.In last two decades, researchers have focused on plant derived compounds as eco-friendly herbicides alternative to herbicides for weed control. *Parthenium hysterophorus* extracts showed significant reduction in weed density and has also shown allelopathic effects toward *Eragrostis* tef, *Cynodon dactylon, Cyperus rotundus, Digitaria sanguinalis, Portulaca oleracea, Echinochloa crus-galli,*

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

Euphorbia prostrata and *Xanthium strumariam* etc. (Maharjan et al., 2007; Nigatu et al., 2010) (Table 2). The sesquiterpene lactone is thought to beresponsible for its allelopathic interference with surrounding plants by inhibitingcell division mediated through gibberellin and indole acetic acid (Kishor et al., 2010). This observation also gained support by the recent studies that >3% 46 J.Plant Sci., 10 (2)

Biocontrol agents:

Biocontrol of *Parthenium hysterophorus* L. using leaf feeding beetle, *Zygogramma bicolorata* was the most cost-effective, environment friendly and ecologically viable alternative management strategy (Strathie and McConnachie, 2013). This caused 96% defoliation that was being followed in India since 1983.Stem-galling moth *Epiblema strenuana* caused 90, 40 and 82% reduction of weed density, plant height and flower production, respectively (McFadyen, 1992; Navie et al., 1998; Dhileepan, 2001, 2007; Shabbir et al., 2013). Furthermore, insects like *Listronotus setosipennis* (stem-boring weevil), *Bucculatrix parthenica* (leaf-mining moth) and *Smicronyx lutulentus* (seed-feeding weevil) also showed *Parthenium's* control (Dhileepan, 2001, 2003; Pandey et al., 2001; Dhiman and Bhargava, 2010; Shabbir et al., 2013). The establishment of the beetle resulted in considerable reduction of *Parthenium* in localized areas. Because, insects mainly feed on leaves of weed which reappear due to their greatregenerative potential of this weed, only little success is achieved in this regard. However, seeds and flowers remain unaffected, which are the main source of itsdissemination. *Cladosporium* sp. (MCPL 461) spore suspension with 3% sucroseshowed 70-80% reduction in seed germination compared to *Lantana camera*, *Chromolaena odorata* (Kumar et al., 2009). Cultural filtrates of different concentrations of *A. alternata, D. rostrata* and *Cladosporium* sp. showed 70-90,27-50 and 13-73% reduction in *Parthenium* seed germination, respectively. Among other fungal species, cultural filtrates of *Fusarium oxysporum*, *Fusarium*

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

solani, Drechslera australiensis and *Drechslera hawaii ensis* also showed considerable reduction in root and shoot length of Parthenium seedlings (Javaid and Adrees, 2009; Saxena and Kumar, 2010).

Use of synthetic herbicides:

Among synthetic weedicides, norflurazon (100%) and clomazone (100%) showed complete removal of *Parthenium* followed by fluometuron (96%), metribuzin (90%), diuron (87%), flumioxazin (84%), chlorimuron (77%) and quinclorac (67%) after six weeks of treatment under greenhouse. All other herbicides controlled less than 58% of this weed. *Parthenium* also showed sensitivity toward pigment and photosynthetic inhibitors. Among weedicides, use of glycophospate, glucofosinate, chlorimuron and trifloxysulfuron at rosette Parthenium provided greater than 93% control but halosulfuron, bromoxynil, MSMA, 2,4-D and flumioxazin controlled 58-90% of *Parthenium* after 3 weeks of treatment.

References –

1. Shreshtha Shah, Anushi Jain ,Joshi Ambika, Joshi Nitesh ,Anupma Harshal(2017) . Study of total phenol ,flavonoid contents and phytochemicals screening of methanolic crude extracts of two weed plants .*Annals of plant sciences* 6.6, pp1645-1648.

2. Ekwealor Udeh Kenneth, Nkumah Chukwu Okereke, Ofobeze Tochuwu (2019).Economic importance of weeds :A review.*Asian plant research journal* 3(2):1-11.

3. WWW.INTERNET .COM.

4. Patel Seema(2011). Harmful and beneficial aspects of *Parthenium hysterophorus* : an update .*3Biotech* 1:1-9.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022

5. Saini Anita ,Aggarwal K. Neeraj, Sharma Anuja , Kaur Manpreet, and Yadav Anita(2014). Utility potential of Parthenium hysterophorus for its strategic management .*Hindawi publication corporation Advances in agriculture* vol.2014.1-16.

6. Chavan Y.R. Aparadh V.T., Thite S.V.,Kore B.A.(2013).Phytochemical analysis of some weeds. *The global journal of pharmaceutical research* vol.2(1),pp. 40.

7. Prakash Udaya N.K., Jahnavi B. , Abhinaya K. , Rajalin Gulbsy A., Bapu Sekar H., Prathap, kumar M. , Reddy Upendra K. , Reddy Dushyanth K., Sundraraman G., Elumalai K., Devipriya S. , Kannan V., Sriraman V.,Kalaivani R.A., Thanmathi M. Kathiravan G., and Bhuvaneswari S. 2011.Phytochemical analysis of common weeds of Northern Districts in Tamil Nadu. *International Journal of Applied Biology*. 2 (1) : 25-28.

8. Khaket Tejinder Pal ,Aggarwal Himanshu , Jodha Drukshakshi Jodha, Dhanda Suman and Singh Jasbir .(2015).Parthenium hysterophorus in current scenario :A toxic weed with industrial ,agricultural and Medicinal Applications.*Journal of plant sciences* 10 (2) : 42-53.

9. Nikam S.R. Namdas D.D. (2022).Preliminary phytochemical analysis of Alternanthera sessilis leaves (Linn). R. Br. ex DC.) *ymer* vol. 21 pp.220-225.

10. Uday Prakash NK, Bhuvaneswari S. ,Aravind R , Kaviyarasan V, KalaivananK, Hariram SB, A comparative study on antibacterial activity of common weeds,*IJPBS*,2011,2(1),677-683.

11. Kishor Prem Ghosh A.K. , SinghSurendra ,Maurya B.R..(2010) .Potential use of (Parthenium hysterophorus L.) in Agriculture . Asian journal of agricultural research 4(4):220-225.

12. Subhendu Datta Saxena Dinesh(2001). Pesticidal properties of parthin (from

Parthenium hysterophorus) and related compounds .*pest management science*.vol.57:95-101.

6.ChavanNorthern Y.R.,Aparadh Vishal T.,Thite Sachin ,Kore B.A. ()

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 8, Dec 2022