

# Parthenium Hysterophorus (Carrot Grass) as the Raw Material for the Bio Polythene in the Future Prospect

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**Abstract**— Present paper is related to green chemistry, also known as sustainable chemistry, is that branch of chemistry which focused on the designing of products and processes that minimize the utilization and production of harmful substances Green chemistry overlaps with all sub disciplines of chemistry but with a particular focus on chemical synthesis, process chemistry, and chemical engineering, in industrial applications. The rapid multiply of parthenium has been a threat to the biodiversity, sustainable production of many crops, human being strength and livestock. Control of parthenium is therefore critical to improve output of many crops as well as to conquer the loss of biodiversity. The parthenium can be kept control by enhancing its use in diverse aspect. Over exploitation of the weed for the beneficial use should be promoted for the propagation of the *P. hysterophorus*. Research should be encouraged for the potential utilization of this weed. Parthenium as the raw material for the bio polythene is the future prospect. The increased utilization of weed as, insecticide, pesticide, composite and the raw material for enzyme production can change the weed from a curse to a boon for civilization.

**Keywords**- parthenium, Bio polythene, Toxin, Carboxylic acid, Ethenol

## I. INTRODUCTION

Aim to publish this paper is to make use of toxic waste from farmer field, for multifarious biological activity. In this research proposal, Author of this paper is trying to prepare bio –polythene from carrot grass.

For this purpose isolation of toxins from carrot grass is to be carried out and then by adoption of any of the two following schemes, ethylene has been prepared for the extraction of biopolythene.

1) Carboxylic acids present in it, will be extracted by chemical means. These acids can be reduce into ethanol. This then dehydrates to form ethylene, which polymerizes to polyethene.

2) By scarification of carrot grass, ethanol is produced, which dehydrate to ethylene, this then polymerize to polythene.

The future scope of the compound has been emphasized with a view to obtain structurally modified derivatives from parthenin so that these derivatives or bioactive moieties could be used for multifarious biological activities

## II. MATERIALS AND METHODS

*P. hysterophorus* ( plant), chloroform extract of this weed, alcohol, chloroform, ether, acetone and ethyl acetate sulphuric acid, Lithium tetrahydridoaluminate etc. Soxhlet extraction unit for separation of toxin.

- Bioethanol production by using chemical and biological pretreatment methods.
- Method of dehydration of ethanol by sulphuric acid to ethylene.
- Method of Polymerization of ethylene to polythene.
- Elasticity Tests of polythene formed, by extensometer.

## III. Experimental Procedure

### Isolation of the toxin

Extraction was accomplished in Soxhlet extraction unit at 65°C and normal atmospheric pressure. Soxhlet extraction was performed using a Soxhlet apparatus (kimax) and a heating mantle/electric heater (electrothermal).

- 500 ml of solvent (methanol) was filled in a flask, which was placed on a heating mantle to change the solvent to gaseous phase. The sample (small particles of *Parthenium Hysterophorus*) was filled in porus cellulose thimble and placed in mid portion – Butt tube) of Soxhlet apparatus.
- The solvent was liquefied by cooling the solvent vapor by a water cooled condenser.
- The flow rate of cold water and temperature of heater was adjusted to liquefy the solvent at the rate of 20 drops per minute so that the liquefied solvent trickles

in the extraction chamber containing the sample to perform the extraction.

#### Extraction cycle:

- The extraction chamber is designed so that when the solvent surrounding the thimble exceeds a certain level (200 ml) is overflows and trickles back down in to the boiling flask. This is considered as one cycle. It took approximately 20 min for each. The extraction process was carried over for 3.5 hours. After completion of the experiment the flask containing the extract was removed. Similar runs were taken using ethanol, acetic acid and chloroform as solvent.

#### IV. RESULT AND DISCUSSION

The rapid spread of parthenium has been a risk to the biodiversity, sustainable production of many crops, human health and livestock. Control of parthenium is therefore crucial to boost productivity of many crops as well as to overcome the loss of biodiversity. The parthenium can be kept control by enhancing its use in different aspects. Over exploitation of the weed for the beneficial use should be promoted for the proliferation of the *P. hysterophorus*.

- Research should be encouraged for the potential utilization of this weed.
- Parthenium as the raw material for the bio polythene is the future prospect.
- The increased utilization of weed as, insecticide, pesticide, composite and the raw material for enzyme production can change the weed from a curse to a boon for civilization.

#### Soxhlet apparatus



Fig..1: Parthenium Hysterophorus (Carrot Grass)

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