OBJECTIVES

1) ***Observation, Identification and screening*** of **some plants having allelopathic potential (weeds)** by simple observation with respect to their growing habit in a particular locality and their capacity of displacement of other plant species if any which tend to grow on the particular site.

2) ***Selection of:***

a) One monocotyledonous weed and **one dicotyledonous weed along with *Parthenium hysterophorus* as a measuring yardstick,** an unanimously accepted global weed.

b) Test plant /bioassay materials: The choice of bioassay material can be the seeds ofgreen gram-(***Vigna radiata)*** *which is a cultivated plant, considered as a very responsive bioassay material for sensing allelopathic property.* Since allelopathy is an ecological phenomenon, additionally the seeds of one weed species will also be taken as target bioassay material. In this case ***Senna occidentalis*** is taken.

3) ***Evaluation*** of allelopathic potential by critical analysis of **seed germination behavior** by using plant extracts and leachates of selected weed species having possible allelopathic property. The germination behaviour can be recorded in terms of **percentage (%) germinability** of seeds, by determining $\mathbf{T_{50}}$ (time taken for 50% germination of seeds), **speed of seed germination** recorded at 24h interval upto 168h.

Physiological parameter like and **TTC** (2,3,5, triphenyl tetrazolium chloride) stainability of seeds are also taken for evaluation of allelopathic potential.

4) *Estimation* :

Biochemical Experiments :

Estimation **of metabolic changes** of both leaf extract and leaf leachate-pretreated **seed kernels**.

a) Soluble carbohydrate b) Insoluble carbohydrate

c)Protein d)Amino acid

e) Nucleic acids : DNA RNA

f) Dehydrogenase g)Catalase

h) Peroxidase i) Amylase

5) ***Prediction*** of some analogous putative allelochemical compounds from parent allelochemicals **using Chem*ID plus* .**

6) ***Cytological Experiments :*** Leaf extract and leaf leachate from these three plants are tested on *Allium cepa* root tips and *Vigna radiata* root tips and chromosomal abnormalities are studied for ***calculation of Chromosomal Abnormality Index (C.A.I) f***or determination of relative allelopathic vigour in these plants.

7) ***Statistical analysis*:** Line graphs and ANOVA (Analysis of Variance of the data with Correlation coefficient (Pearson's) of :

i)seed germination data.

ii)physiological and Biochemical parameters.

iii)Chromosomal Abnormality Index (C.A.I).

8) ***Determination*** of the relative allelopathic potential of the three weeds in an ascending order.