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EFFECT OF *LANTANA CAMARA* STEM EXTRACT ON GROWTH OF *PARTHENIUM HYSTEROPHORUS* IN FLOWERING STAGE

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ABSTRACT
The current study used an effective technique (allolopathy) for *weed c*ontrol. However, *Lantana camara* has inhibitory effect on growth of *Parthenium hysterophorus*. The results indicated that these effects were much pronounced at higher concentrations**.**

Keywords: Parthenium, Lantana camara, Growth.

INTRODUCTION
Parthenium hysterophorus is a species of flowering plant and member of asteraceae family. *Parthenium* causes serious problem create for inhibiting growth of crops, native vegetation and pollen causing dermatitis and hay fever in human beings. Thus, his control is more essential for our environment protection**.** Allelopathy used as a reducing chemical fertilizer, cheaper and weed control technique**.**

Lantana camara is native to Central and South America. *Lantana* has responsible loss of native biodiversity (Sharma etal.(2005), Day et al (2003) and promoting fire hazards(Hiremath and sundaram (2005). *Lantana camara* leaf extract has showing phytotoxic effect on germination and growth behavior of *Trigonella foenum-graceum* L. (Mishra, 2013). Sadak (2019) investigated effect of *Lantana* leaf extract on growth, biochemical aspects of Chickpea plants.

Alllelopathy used a unique tool for weed control (Mishra, 2015). Mishra and Tripathi (2021) reported that effect of *Lantana camara* stem extract on growth of *Parthenium hysterophorus* in seedling stage. This study clearly demonstrated the inhibitory effect of *Lantana camara* stem aqueous extract on the plant height, leaf area and fresh and dry weight of *Parthenium hysterophrus* in flowering stage.

MATERIALS AND METHODS
The study area Shakti nagar lies in the Banda district of Uttar Pradesh in between Latitude 24º 53' and 25º 55' N, Longitude 80º 07' and 81º 34' E , the geographical area of the district is 4114.20 sq. km. Stems of *Lantana camara* were collected from Chitrakoot region of Madhya Pradesh.

100gm of stem in small pieces and crushed in the mixture grinder after grinding the material of stem paste were soaked in 200 ml of distilled water for 24 hrs then prepare the following concentrations 100%, 50%, 33%, 25% and water as a control treatment. The extract of specimen was filtered with muslin cloth. The concentration volume of specimen was maintained by adding distilled water. In each of the experiments the size of the quadrate was 100 x 100 cm ($1m^2$). Foliar treatment of flowering stage of *Parthenium hysterophorus* with different aqueous stem extracts of *Lantana camara* on alternate days but control quadrates sprayed only distil water.

RESULTS AND DISCUSSION
1 Effect of *Lantana camara* aqueous stem extract on shoot and root length of *Parthenium hysterophorus in* flowering stage
The different concentration of aqueous stem extract of *Lantana camara* had significant effect on shoot and root length of *Parthenium hysterophorus* flowering plant. The plant growth inhibits after aqueous stem extract spray on *Parthenium hysterophorus* flowering plant. Plant shoot and root length were control after 7^{th} spray, 6^{th} spray, 5^{th} spray and 4^{th} spray of 25%, 33.33%, 50% and 100% concentration of aqueous stem extract of *Lantana camara* respectively. Finally, plant was dead after 11^{th}, 9^{th}, 7^{th} and 5^{th} spray of 25%, 33%, 50% and 100% concentration of aqueous stem extract of *Lantana camara* respectively.

Maximum growth of shoot and root were observed 193.92% and 201.84% increased respectively in control. Plant shoot and root length were decreased over control with the increasing concentration of extract. In 25% extract the plant growth were observed

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42.66% increase in shoot and 38.46% increased in root over control. In 33% extract the plant growth were observed 20.52% increased in shoot and 15.20% increased in root over control.

In 50% extract the plant growth were observed 13.33% increased in shoot and 10.66% increased in root over control. Minimum percentage increase 7.05% in shoot length and 6.42% in root length were recorded in 100% concentration. The plant growth inhibits after aqueous stem extract spray on *Parthenium hysterophorus*. Detail result showed in Table 1.

Table 1: Effect of *Lantana camara* stem extract on growth (cm) of *Parthenium hysterophorus* in flowering stage.

Shoot and root length (cm) at the time of spray															
Number of spray															
Concentration in %	**Plant growth (cm)**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**		**% Increase Over BT**	**% Decrease Over BT**
Control	Shoot	18.1	20.3	22.7	25.3	28.1	31.1	34.3	37.7	41.3	45.1	49.1	53.2	193.92	
	Root	16.3	18.3	20.5	22.9	23.1	28.3	31.3	34.5	37.9	41.5	45.3	49.2	201.84	
25 %	Shoot	15.0	16.6	18.0	19.2	20.2	21.0	21.4	21.4	21.4	21.4	21.4	-	42.66	151.26
	Root	13.0	14.4	15.6	16.6	17.4	17.9	18.0	18.0	18.0	18.0	18.0	-	38.46	163.38
33%	Shoot	19.0	20.2	21.2	22.0	22.6	22.9	22.9	22.9	22.9	-	-	-	20.52	173.4
	Root	17.1	18.1	18.9	19.5	19.8	19.9	19.9	19.9	19.9	-	-	-	15.20	186.64
50 %	Shoot	18.0	18.9	19.6	20.1	20.4	20.4	20.4	-	-	-	-	-	13.33	180.59
	Root	15.0	15.7	16.2	16.5	16.6	16.6	16.6	-	-	-	-	-	10.66	191.18
100	Shoot	17.0	17.6	18.0	18.2	18.2	-	-	-	-	-	-	-	7.05	186.87
	Root	14.0	14.5	14.8	14.9	14.9	-	-		-	-	-	-	6.42	195.42

BT = Before treatment; - = Dead the *Parthenium* weed.

2. Effect of *Lantana camara* aqueous stem extract on leaf area *Parthenium hysterophorus* in flowering stage

The different concentration of aqueous stem extract of *Lantana camara* had inhibitory effect on leaf area of flowering *Parthenium hysterophorus* plant. The leaf area was decreased after aqueous stem extract spray on plant. Plant leaf area was decreased over control with the increasing concentration of extract.

Maximum leaf area of *Parthenium hysterophorus* was observed 67.38% increased in control. In 25% concentration aqueous stem extract the leaf area were observed 23% increased and in 33% concentration leaf area were observed 20.24% increased over control.

In 50% concentration leaf area were observed 11.08% increased over control. Minimum percentage 6.53% increase was recorded in 100% concentration. Percentage increase in leaf area showed in Fig 1.

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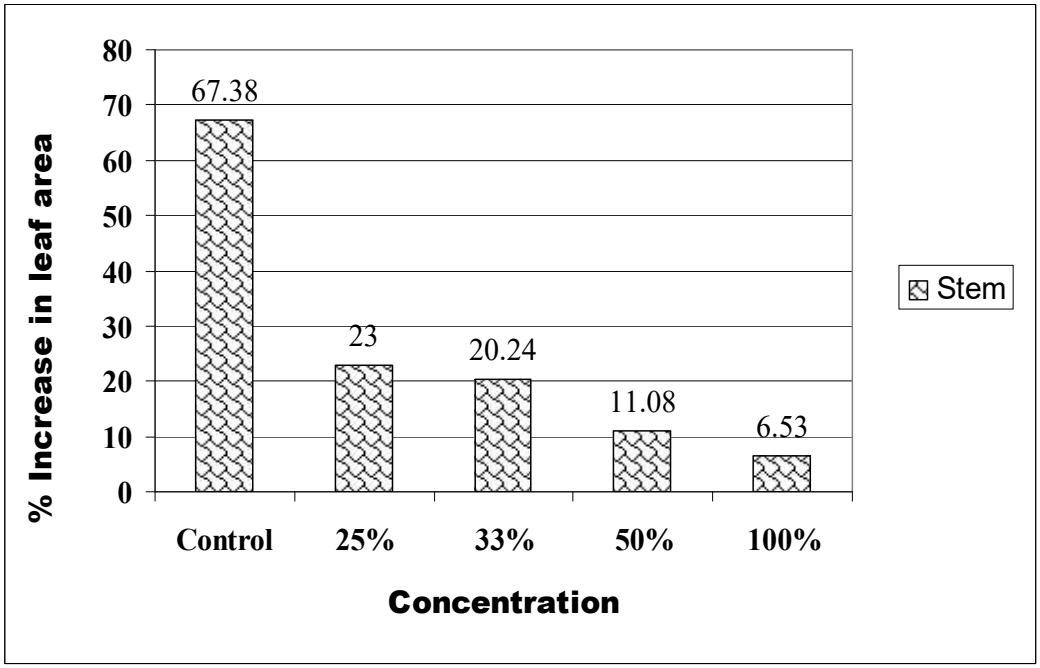

Fig.1: Effect of different concentration of *Lantana camara* stem extract on leaf area of *Parthenium hysterophorus* in flowering stage.

3. Effect of *Lantana camara* aqueous stem extract on fresh and dry weight in flowering stage

The different concentration of aqueous stem extract of *Lantana camara* had allelopathic effect on fresh and dry weight of *Parthenium hysterophorus* flowering plant. Plant fresh and dry weight was decreased over control with the increasing concentration of extract. Fresh and dry weights were decreased after aqueous stem extract spray on plant.

Maximum fresh weight of *Parthenium hysterophorus* was observed 622.62% increased in control. In 25% concentration aqueous stem extract the fresh weight were observed 42.61% increased and in 33% concentration fresh weight were observed 24.89% increased over control.

In 50% concentration fresh weight were observed 12.44% increased over control. Minimum percentage 6.07% increased fresh weight was recorded in 100% extract concentration. In the all concentration of extract, the dry weight of *Parthenium hysterophorus* were decreased accordingly fresh weight. Detail observation showed in Table 3 Percentage increase in fresh weight showed in Fig 2.

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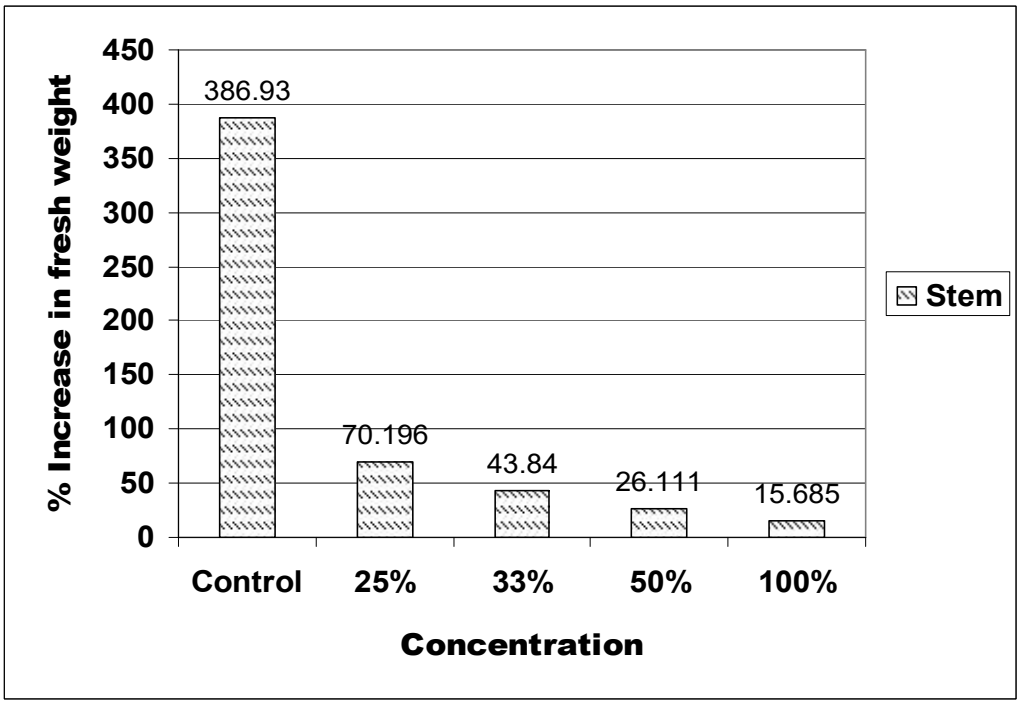

Fig.2: Effect of different concentration of *Lantana camara* stem aqueous extract on fresh weight of *Parthenium hysterophorus* in flowering stage.

Mishra (2015) reported that Leaf extract of *Lantana camara* were highly effective in reducing the germination of *Parthenium hysterophorus* followed by *Calotropis procera*, *Amaranthus viridis* and *Datura stramonium*. *Lantana camara* aqueous leaf extract *has* inhibitory effect of *L.camara* on growth of *Parthenium hysterophorus* in fruiting stage and flowering stage (2013,2014).

Lantana camara aqueous stem extract spray was inhibiting the growth of root and shoot of *Parthenium hysterophorus* flowering stage.

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