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INDIGENOUS METHODS: CONTROL OF SEPTORIA LEAF BLOTCH OF WHEAT

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Abstract- In current study, the control of septoria leaf blotch of wheat by different seed treatment from indigenous methods during November to April. 2014-2015. In this study, the different seed treatment applied *viz.* Control, Sun drying, Polythene solarization, Brine solution, *Allium sativum* leaf extract with cow urine and Hot water treatment for control of septoria leaf blotch of wheat respectively. In the pots, the result was obtained the highest control 54.64 % was recorded from *Allium sativum* leaf extract with cow urine treatment in the T_5 where as lowest control 9.01 % was recorded from sun drying in the T_2. In the plots, the result was obtained the highest control 48.71 % was recorded from *Allium sativum* leaf extract with cow urine treatment in the T_5 where as lowest control 12.82 % was recorded from sun drying in the T_2. I was noted, *Allium sativum* leaf extract with cow urine is best treatment for control of septoria leaf blotch of wheat from 1:2 ratio in pot and plot

Keywords- Control, Indigenous method, Septoria leaf blotch.

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Introduction

Wheat (*Triticum aestivum* L.) is the most important cereal crop of India and spring wheat is grown during winter from November-December to March-April. Due to this destructive which pathogen, the yield loss was estimated at 18-22% in India [6]. In India, the disease frequently occurs in the in warm and humid areas of Bihar, West Bengal, Uttar Pradesh, Orissa, Assam, Madhya Pradesh, and Maharashtra.

Septoria leaf blotch is much economic importance in humid and warmer areas especially in north eastern plains zone (NEPZ), but due to climate change and crop intensification this disease is also gaining attention in north western, peninsular zone and central zone of India, posing new challenges to farmers. Yield loss of this disease was estimated to be 18-22 % in India [6].

Septoria leaf blotch survives from one season to the next on stubble. Septoria leaf blotchis a disease caused by *Septoria tritic* could survives from one season to the next on stubble [4]. An integrated approach that incorporates variety selection, cultural practice or indigenous technique and fungicides is the most effective way to manage septoria leaf blotch.

The objective of this study was to determine the control of septoria leaf blotch of wheat by indigenous methods in Allahabad, Uttar Pradesh, India.

Materials and Methods

The present studies were carried out at Bhargava Agricultural Botany laboratory, Department of Botany University of Allahabad, Allahabad, Uttar Pradesh, India, during November to April. 2014-2015 for control of Septoria leaf blotch of wheat from indigenous technique.

Collection of leaf samples:

Leaf samples were collected between flowering and milk ripening growth stages from mid January till early February. For different wheat cultivated areas of Allahabad district, U.P. in India. The collected samples were put into sterile polythene bags and seal properly.

Isolation and identification of fungi from wheat leaf:

The pathogen was isolated from the diseased leaves presenting typical necrotic symptoms. Small sections of diseased leaves were disinfested in 70% ethanol and 0.1 % mercuric chloride for 1 min, then rinsed twice in sterile distilled water and placed on 2% potato dextrose agar (PDA). Petri dishes were maintained at 22 °C. Single conidial isolates were derived by removing conidia from the initial isolation dishes, placing them on the surface of water agar, and later transferring single, germinating conidia to PDA. The isolated pathogen was identified on morphological basis by light microscope. They also identification was conducted using morphological characters such as spore size, shape, colour and their arrangement on the conidiophores and morphology of the mycelium [7] by referring to [2].

Procedure of septoria leaf blotch treatments

The experiments were evaluated in laboratory and plot. Three varieties have been selected; each 10 seeds tested with three replications in laboratory and plot a randomized experimental arrangement each 100 seeds tested with three replications. Septoria leaf blotch of wheat caused by *Septoria tritic* isolate from i.e. Kaushambi, *Pusa Basant* and poor varieties as tested selected to 3.06 × 2.07 meter plot with plant to plant distance 18 cm and row to row 23 cm.[5]. Six treatments were explored in this experiment namely:-

T_1=control were evaluated against septoria leaf blotch of wheat.

T_2= Sun drying, evaluation of seed solarization against septoria leaf blotch of wheat. In which seed treatments were sun dried for 12 hours after sowing.

T_3 = Polythene solarization, evaluation of polythene solarization of wheat seed against septoria leaf blotch of wheat. In case of seed treatments were covered by transparent polythene paper and sun dried for 12 hours after sowing.

T_4 = Brine solution, evolution of brine solution against septoria leaf blotch of wheat. Brine solution was prepared by mixing 100 ml tap water with 2 gm NaCl seeds were soaked in the solution for 15 minutes.

T_5= *Allium sativum* leaf extract with cow urine, the wheat seeds were treated from leaf extract of *Allium sativum* with cow urine, dipping seeds in 1:2 ratio preparations.

T_6 = Hot water treatment, evaluation of hot water against septoria leaf blotch of wheat. The wheat seeds were treated with hot water 45^{0}C for 5 minutes by hot

water. The control percentage of fungal was calculated by applying this formula:-

$$\text{Control \%} = \frac{\text{Maximum infected plant– Minimum infected plant}}{\text{Maximum infected plant}} \times 100$$

Result and Discussion

In the experiment, the control of septoria leaf blotch of wheat by different seed treatment. In this study, the different seed treatment applied *viz.* Control (T_1), Sun drying (T_2), Polythene solarisation (T_3), Brine solution (T_4), *Allium sativum* leaf extract with cow urine (T_5) and Hot water treatment (T_6) for control of septoria leaf blotch of wheat respectively. In the pots, the result was obtained the highest control 54.64 % was recorded from *Allium sativum* leaf extract with cow urine treatment in theT_5 where as lowest control 9.01 % was recorded from sun drying in the T_2 [Table-1].

Table-1 *Control of septoria leaf blotch of wheat by different seed treatment in pots*

Treatment	No. of infected plant in Pots				Control %
	P_1	P_2	P_3	Mean ± SD	
T_1= control	4	4	3	3.66 ± 0.57	00.00
T_2=Sun drying	4	3	3	3.33 ± 0.57	09.01
T_3 = Polythene solarization	2	3	3	2.66 ± 0.57	27.32
T_4 = Brine solution	3	2	2	2.33 ± 0.57	36.33
T_5= *Allium sativum*leaf extract with cow urine	2	1	2	1.66 ± 0.57	54.64
T_6 = Hot water treatment	2	2	2	2.00 ± 0.00	45.35

Note: - P_1, P_2, P_3= Pot, SD = Standard deviation

In this study, the control 9.01 % was recorded from sun drying in the T_2, the control 27.32 % was recorded from polythene solarisation in the T_3, the control 36.33 % was recorded from brine solution in the T_4, the control 54.64 % was recorded from *Allium sativum* leaf extract with cow urine in the T_5, the control 45.35 % was recorded from hot water treatment in the T_6 and the control (untreated seed) in the T_1 [Table-1].

In the plots, the result was obtained the highest control 48.71 % was recorded from *Allium sativum* leaf extract with cow urine treatment in the T_5 where as lowest control 12.82 % was recorded from sun drying in the T_2 [Table-2].

In this study, the control 12.82 % was recorded from sun drying in the T_2, the control 28.20 % was recorded from polythene solarisation in the T_3, the control 35.89 % was recorded from brine solution in the T_4, the control 48.71% was recorded from *Allium sativum* leaf extract with cow urine in the T_5, the control 43.58 % was recorded from hot water treatment in the T_6 and the control (untreated seed) in the T_1 [Table-2] [3] was also worked on evaluation of some physical seed treatments against *Bipolaris sorokiniana* associated with wheat seeds. The findings also supported by [1] was worked on leaf blast, brown spot and narrow brown leaf spot diseases of rice.

Conclusion

I was noted, *Allium sativum* leaf extract with cow urine is best treatment for control of septoria leaf blotch of wheat from 1:2 ratio in pot and plot.

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Table-2 *Control of septoria leaf blotch of wheat by different seed treatment in plots*

Treatment	No. of infected plant in Pots				Control %
	P_1	P_2	P_3	Mean ± SD	
T_1= control	39	40	38	39.00 ± 1.00	00.00
T_2=Sun drying	32	36	34	34.00 ± 2.00	12.82
T_3 = Polythene solarization	30	28	26	28.00 ± 2.00	28.20
T_4 = Brine solution	24	25	26	25.00 ± 1.00	35.89
T5= Allium sativumleaf extrac with cow urine	22	20	18	20.00 ± 2.00	48.71
T6 = Hot water treatment	24	20	22	22.00 ± 2.00	43.58

Note:- P_1, P_2, P_3= Plot, SD = Standard deviation

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