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Evaluation of Medicinal Plant Extracts (Spray) As Disease Resistance in Selective Plant Pathogens

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ABSTRACT

In recent era we have seen that there is increase in fungal infections rate in plants and crops as well as further to animals and humans so all over the globe excessive chemical controls been used as fungicides, the excessive use of these chemicals having adverse effect on nature, so need is to use plant extract by using most effective extraction methods. So it had become the demand to develop most effectual methods for the extraction and segregation bioactive contents from antifungal medicinal plants. Present review focused upon the methods used in the extraction and separation of natural content. In this research the results obtained by preparing mix medicinal plant extract as a spray made by using *Allium cepa*, , *Calotropisprocera*, *Tagetes erecta*, *Daturastramonium*, *Ocimum sanctum* (*O. tenuiflorum* in same quantity serve as best examples of traditional and latest techniques concerned in extraction of effective contents from medicinal plants.

Key words: Anti fungal, Medicinal Plant Extraction,

I. INTRODUCTION

In recent era we have seen that there is increase in fungal infections rate diagonally the world due to the manifestation of antifungal efficacy to diverse fungicidal used in medicinal practice. It is usually documented that several types of fungal pathogens can be a reason for loss in cereal yield. Furthermore fungal pathogens can have an effect on cereal grains during the storage period, which is out of standard for human use by, worsen the safety & quality of food product. Mycotoxins present in that fungi cause serious loss as well as unfit for taking it as food [1].

Further it cause rancid flavor in the grains [2,3] the fungal species like *Aspergillus*, *Penicillium*&*Fusarium* distressing the production of grain, cereal further it leads in degradation of food . The variety of strategies used for the check out for fungal infection, like acceptance of specific agronomic application for the expansion of anti fungal varieties [4].

Most of the plant diseases controlled by using various chemical additives available in market. Viz. Imazalil-Sulphate Benzimidazoles ($C_7H_6N_2$), Organic, & Inorganic Sulfur Contents & oxidizing stuffs have been pioneered to managing various plant disease. The recent focus point is that the widespread use of such chemical components which are responsible for the serious environmental problems, toxic effects upon animals & humans, organization of fungal resistant races, is having elevated costs. So now a days to protect environment & to reduce cost of fungicides more than two hundred species work as plant pathogens become defiant to chemical pesticides further, various side effects cause by pesticides have been noted .

II. MATERIALS AND METHODS

1) II-1: Plant collection

Leaf materials of the selected 05 plant species viz., *Allium cepa*, *Calotropis procera*, *Tagetes erecta*, *Datura stramonium*, *Ocimum sanctum* (*O. tenuiflorum*), plant species were collected from the various regions of latur district.

2) II-2: Extraction procedure

Each finely ground plant material (4 g) were extracted with 40 ml of solvents of increasing polarities: hexane, dichloromethane, acetone and methanol (technical grade-Merck) in polyester plastic tubes, while shaking vigorously for 3-5 min on a shaking machine at high speed. After centrifuging at 3500 rpm for 5 min, the supernatants were decanted into labelled, weighed glass vials. The process was repeated three times on the marc and the extracts were combined. The solvent was removed under a stream of cold air at room temperature. Plant extracts were re-dissolved in acetone for further microbiological assays and phytochemical analysis.

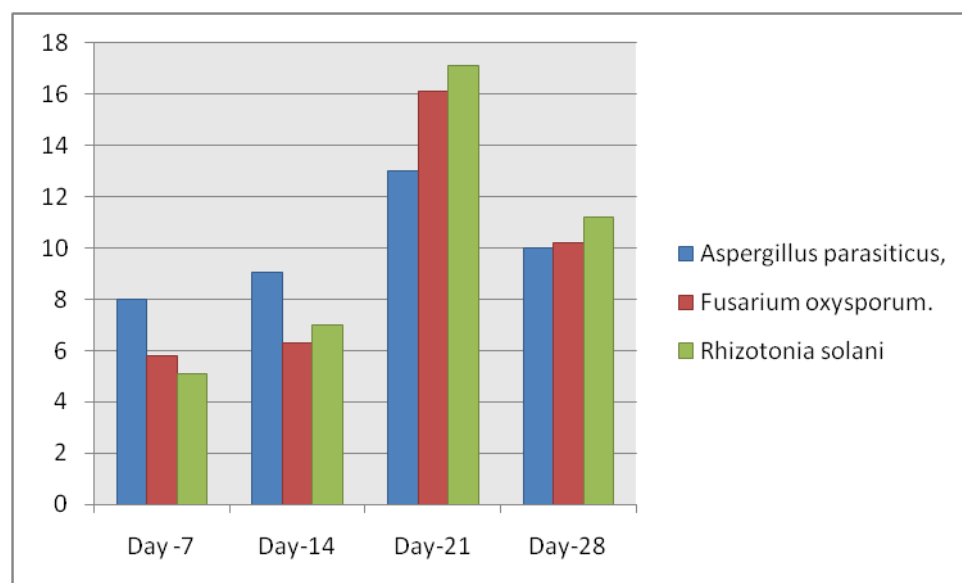
After that all plant extract mix in container in total amount divided by 5

III. RESULTS

The experiments carried out on extracts of 05 plant species viz., *Allium cepa*, *Calotropis procera*, *Tagetes erecta*, *Datura stramonium*, *Ocimum sanctum* (*O. tenuiflorum*), All solutions were mix together and solution were used as spray which showed antifungal properties against five pathogenic fungi under laboratory condition by using different concentrations (400, 600, 800, 900 micro g/ml.). Leaf extracts of *Allium cepa*, *Calotropis procera*, *Tagetes erecta*, *Datura stramonium*, *Ocimum sanctum* (*O. tenuiflorum*), were the most antifungal against all the test fungi, their potential was more pronounced at 900 micro g/ml.

Table 1: antifungal activity of the medicinal plant extract against plant pathogens isolated from various diseased plants (900 micro g/ml.)

Sr. no	Isolated pathogens	Zone of Inhibition			
		Day -7	Day-14	Day-21	Day-28
1.	<i>Aspergillus parasiticus</i> ,	8.02±0.1	9.03±1.2	12.98±0.4	10.01±0.2
2.	<i>Fusarium oxysporum</i> .	5.8 ±1.34	6.3 ±1.51	16.1 ±1.33	10.2± 1.60
3.	Rhizotonia solani	5.1 ±1,23	7.02 ±1.51	17.1 ±1.12	11.2± 1.60

**Fig: antifungal activity of the medicinal plant extract against plant pathogens isolated****Antagonistic effect:**

To evaluate the antagonistic effect of mix medicinal plant spray against the fungal plant pathogens. The antagonistic activity of mix medicinal plant spray isolate was done against fish pathogens by *Cross streak method*.

The zone of inhibition showed against plant pathogens at day 21, the good result were obtained at concentration (900 micro g/ml.) (table 1). Other concentrations show less inhibition (viz. 400, 600, 800 micro g/ml). In the current study, negative controls showed that acetone alone was not harmful to the plant pathogens at the highest percentage tested, confirming previous results. However, plant extracts are traditionally prepared with water as infusions, decoctions and macerations. Therefore, it would be difficult for the traditional healer to be able to extract those compounds which are responsible for activity in the acetone and methanol extracts. Many traditional healers use water to extract plant material, since water is not toxic, not expensive and is the only extractant available. In some cases animal fat is mixed with plant material and under these conditions the non-polar compounds could become available. (6)

IV. CONCLUSION

Acetone was the best extract and it is also low in toxicity to the test organisms. In bioautography, several active compounds were visible in acetone, hexane, dichloromethane and methanol extracts

Benefit of Present Research Work to Society

1. **Lab to land practice:** From present investigation we can provide low cost formulated antifungal spray.
2. **Immune modulation:** Antagonistic effect against some fungal plant pathogens shows its antagonistic effect too.
3. **Eco-friendly Research:** Now a days the research spotlight upon to do ecofriendly research. By using natural contents only.

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