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Evaluating the activity of *Acacia Auriculiformis* against the Leaf Curl Disease in Brinjal plants

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ABSTRACT

Objective:-To Evaluate the activity of *Acacia auriculiformis* against the leaf curl in brinjal plants.

Methodology:-Fresh leaves of Acacia auriculiformis were collected and were weighed up to 2kg.The leaves were powdered and were dissolved in 750ml of water. The leaves were subjected to boiling till 1/3 of the volume is vaporised. The sample was filtered to collect the filtrate and was sprayed over the brinjal plants.

Result:-First field visit in Brinjal field were taken and it was observed that there was high percentage in leaf curl before spraying. When the leaves were sprayed using different concentrations of the drug like 5% ,10%, 20%, 50% with neem solution as positive control(2% ,4%, and 6%) and water as negative control , it was observed that the drug shows positive result on the plants.

Conclusion:-The field experiment data carried out suggested that the formulation work against the disease and hence the drug shows positive result.

***Key words**:-Acacia auriculiformis, Brinjal plant, neem solution,*

I INTRODUCTION

Acacia auriculiformis:-The plant is also known as auri, tan wattle, ear leaf acacia.it belongs to the family Fabaceae and is widely found in Australia, Indonesia and in India[1]

Acacia auriculiformis is an evergreen tree that grows between 15-30 m tall, with a trunk up to 12 m long and 50 cm in diameter. The trunk is crooked and the bark vertically fissured. Roots are shallow and spreading. Leaves are 10-16 cm long and 1.5-2.5 cm wide with 3-8 parallel nerves , thick ,leathery and curved[2]

Flowers are 8 cm long in pairs, creamy yellow and sweet scented. pods are about 6.5×1.5 cm, flat, cartilaginous,glaucous, transversely veined with undulate margins[3]

Leaf Curl leaf curl is a plant disease characterised by curling of leaves. This is caused by a fungus belonging to genus Taphrina or virus especially genus begomovirus of the family geminiviridae .leaf curl problem reduces

the amount of leaves and fruit produced by the plants. The fungus T. deformans causes deformation of young leaves, red blisters and ultimately the whitish bloom that covers the leaf as the infection progresses.the disease can be easily noticeable, and the severity of the signs depend on how early infection has occurred. Diseased leaves can usually be identified soon after they emerge from the bud, due to their red colour and twisted shape.As the leaves develop, they become increasingly distorted, and ultimately thick and rubbery compared to normalleaves. The colours of the leaves change from the normal green to red and purple, until finally a whitish bloom covers each leaf[4]

II MATERIALS AND METHODS

2.1.Extraction process

Extraction process used was hot water extraction *Acacia auriculiformis* leaves about 2 kg in dried powder formwas weighed and transferred in stainless steel beaker. To this 750 ml of distilled water was added and was boiled till 1/3 of volume is vaporised. The solution was filtered through muslin cloth and was centrifuged for 15 minutes @ 4500 rpm. After centrifugation the extract was concentrated on water bath at 80°c and dried in vacuum desiccator then stored in refrigerator[5]

III PHYTOCHEMICALS SCREENING

The dried aqueous extract was analyzed for various phytoconstituents like alkaloids, steroids, saponins, sugar, flavonoids, tannins, and glycosides and mucilages. The concentration of the aqueouss extract kept@1mg/ml for this study[6]

3.1. Test for sugar (Molisch's test)

1 ml of test sample was taken in a test tube and mixed with 2 drops of Molisch's reagent. To this solution, 1 ml of concentrated sulfuric acid was added. Molisch's reagent was prepared by dissolving 10 g of α-Napthol in 100 ml of s added from side of the inclined test tube, so that 2 the acid formed a layer beneath aqueous solution without mixing with it. A red brown ring appears at the common surface of the liquids indicating presence of sugar.

3.2. Test for saponins (Foam test)

The sample (1mg/1 ml) was taken in a test tube and diluted with 2 ml of distilled water. It was shaken by hand for 15 min. A foam layer was obtained at the top of the test tube. This foam layer indicates presence of saponins. Test for steroids Crude plant extracts (1 mg/ml) was taken in a test tube, dissolved with chloroform (10 mL) and an equal volume of concentrated sulfuric acid was added to the test tube by sides. The upper layer in the test tube turns into red and sulfuric acid layer showed yellow with green fluorescence which indicates presence of steroids.

3.3. Test for flavonoids

One ml sample (1mg/1 ml) was taken in a test tube and added a few drops of 10% NaOH solution. An intense yellow colour appears in the test tube. After addition of a few drops of dilute acid, it became colourless that indicates presence of flavonoids. Test for tannins One ml of aqueous extract (1mg/1 ml) was added to 1 ml of distilled water and a few drops of 5% ferric chloride (dissolved in 90 % ethyl alcohol) solution was added. A dark green or blue green colour formed, which showed presence of tannins.

3.4.Test for glycosides

Crude plant extracts (1 mg/ml) was taken in a test tube and added few drops of Molisch's reagent. Mixed it and add 2ml of concentrated sulfuric acid carefully through the side of test tube. Formation of reddish violet ring indicates presence of glycosides.

3.5.Test for alkaloids (Mayer's reagent)

Mayer's reagent was prepared as follows: 1.36 g of mercuric chloride and 5g potassium iodide dissolved in 100 ml of distilled water. 1 ml plant extract (1mg/1 ml) was taken in a test tube and 3 a few drops of Mayer's reagent was added. Cream colour precipitates out, which indicates presence of alkaloid

Table 1 : Phytochemical Screening

S.NO	TESTS Performed	Result Observed
1.	Test for sugar(Molisch Test)	Positive.
2.	Test for Saponins(Foam test)	Positive.
3.	Test for flavonoids	Positive.
4.	Test for steroids	Negative.
5.	Test for flavonoids	Positive
6.	Test for Tannins	Positive
7.	Test for Glycosides	Positive
8.	Test for Alkaloids	Positive

IV OBSERVATION

4.1. Before spraying

First field visit of brinjal plants show too much curling of leaves. When the plants were spayed using different concentrations like 5%, 10%, 20% and 50% with neem solution as positive control (2%, 4% and 6%) and water as negative control, it was observed that the drug shows slight positive result on the brinjal plants.


4.2. After spraying


V CONCLUSION

Acacia auriculiformis was tradionally used for leaf curl. On phytochemical analysis it shows the presence of alkaloids , tannins ,glycosides ,saponins ,sugars .The field experiment data carried out suggests that the Acacia auriculiformis can work against the disease. Further work should be done to isolate the constituent responsible for leaf curl.

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