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MYCORRHIZAL EFFICACY ON CHEMICAL COMPOSITION OF THE *TEJETES ERECTA*, L (Marigold)

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ABSTRACT:

Tajetes erecta (Marigold) is an hairy erect annual herb 1-2 ft high. It consists of chemical compositions like salicyclic acid, essenatial oil. Essential oil containing azulenogenic sesquiterpenes. Flowers contain calendulin, traces of essential oin, oleanolic acid, a gum, a sterol, cholesterol and arnidiol. Insulin in roots. This plant is vulnerary, astringent and styptic. Leaves are resolvent and diaphorties. Flowers and plant used to treat wounds and injuries hence this plant taken for experimental study. The purpose of this study was to observe effect of mycorrhizha on plants and its different biochemical composition. The leaves of *Tajetes* showed good antioxidant activity (82.17%) and UV-Visible spectra shows growth factor of plant. These observations are suggested that use of mycorrizha for the growth of plant is useful and also shows positive impact on biochemical composition of plant *Tajetes.*

Key wards:- *Mycorrhiza, Chemical composition, Tejestes erecta, L.*

INTRODUCTION:

During the present investigation, effect of AM fungi on the growth of medicinal plants were studied. Medicinal plants like *Tajetes erecta,* L selected for the present study because they are common, seasonal and medicinally most important. *Tajatus erecta* is an hairy erect annual herb 1-2 ft high. It consists of chemical compositions like salicyclic acid, essential oil. Essential oil containing azulenogenic sesquiterpenes. Flowers contain calendulin, traces of essential oin, oleanolic acid, a gum, a sterol, cholesterol and arnidiol. Insulin in roots. This plant is vulnerary, astringent and styptic. Leaves are resolvent and diaphorties. Flowers and plant used to treat wounds and injuries hence this plant taken for experimental study. (Jain, 2008).

Due to number of medicinal properties *Tajetes* is selected for pot culture experiment. The purpose of this study was to observe effect of mycorrizha on plants and its different biochemical composition.

MATERIAL AND METHOD:

To test the effect of mycorrhiza on the chemical composition of the medicinal plant, plant extract prepared from the leaves and twigs of respective *Tajetes* plants after 40 days of sowing of the seedling.

Analysis of *Tajetes* extract

Sample Plantation and Collection – The purpose of this study was to observe effect of mycorrizha on plants and its different biochemical composition. *Tajetes* sample was planted in soil of Parner (Ahmednagar, Maharashtra) in period of June – July 2018, and grows under observation. Plants grow in soil which contains mycorrizha (Experimental) and another one (Control) is grows under normal soil condition.

Sample Preparation – *Tajetes* leaves taken and clean by using distilled water and dried using distilled water. Exactly 1 g of leaves weighed and taken into motor and pestle and prepared paste of it. Paste was transferred into solvent extraction cell and added 50 ml methanol and extracted twice. Collected

extract into 100 ml volumetric flask and make up final volume to 100 ml with methanol.

Plant Extract

Di phenyl picryl hydrazyl (DPPH) assay was performed according to recommended Methods of and Interpretation Measurement mentioned by Philip Molyneux.

Each plant extract sample's stock solution (1mg/ml) was diluted to final concentration of 1000 µg/ml in methanol. Volume was made up to 2 ml with methanol. 2 ml of 0.004% of DPPH was added to the sample solution. These were test samples. 2ml of methanol was added to the sample solution of different concentration. These were blank solutions. 2 ml of DPPH solution was added to 2 ml of methanol and used as negative control. The blank for this solution was methanol. Similarly, ascorbic acid as DPPH is sensitive to light, it was exposed to the minimum possible light. These solutions were kept at room temperature in dark for 30min to complete the reaction (Shamim et al., 1994). The absorbance was measured at 518 nm and converted into the percentage antioxidant activity using the following equation:

Scavenging capacity (%) =

$$\frac{(\text{Absorbance of negative control} - \text{Absorbance of test}) * 100}{\text{Absorbance of negative control}}$$

RESULTS AND DISCUSSION:

During result we have observed UV-Visible Spectroscopic analysis and anti-oxidant activity

UV-Visible Spectroscopic Analysis of Tajas and its interpretation

The UV- Visible Spectra of *Tajetes* shows absorption at 543.6 nm shows it contains Chlorophyll-a, for experimental sample extract it contains absorption of 0.8437 and that of control sample is 0.605, absorption at 613.3 nm corresponding Chlorophyll-b, for experimental extract it contains absorption of 0.9024 and that for control sample is 0.7852, and absorption at 668.2 nm also corresponding to Chlorophyll-a, for experimental extract it contains absorption of 2.130 and that of control sample is 1.019, it clearly shows that impact of sunlight on formation of these biochemical substances in the *Tagetus* plant (Karthikeyan et al., 2009).

Antioxidant Analysis of *Tagetes* and its interpretation

CONCLUSION:

The plant extract of *Tagetes* treated with mycorrhiza showed good antioxidant activity (72.85 and UV-Visible spectra shows growth factor of plant. These observations are suggested that use of mycorrizha for the growth of plant is useful and also impact on biochemical composition of plant *Tagetes* as compared to control. Our results correlate with Marieta *et al.*, (2017) the greatest increase in the total esterase activity and concentration of phenols, flavonoids and ascorbate was marked in the plants with simultaneous inoculation of mycorrhizal fungi and the green algae. Assay proved the increased plant antioxidant capacity after co-colonization of green algae and mycorrhizae.

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Antioxidant activity-

a) DPPH assay:

Sample/Experimental	% inhibition at Time (min)					
	5	10	15	20	25	30
Tagetes Experimental	50.97	54.62	58.67	63.53	67.18	72.85
Tagetes Control Sample	33.14	35.58	41.25	46.11	52.59	57.05
Ascorbic acid	74.88	77.71	79.34	80.15	82.29	87.03