



International Journal of Pharmaceutical Research & Analysis

e-ISSN: 2249 – 7781
Print ISSN: 2249 – 779X

www.ijpra.com

COMPARATIVE ACCOUNT OF MEDICINAL PROPERTIES OF *Andrographis paniculata* AND *Costus igneus*

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ABSTRACT

Both the plants, *A. paniculata* and *C. igneus* are easily grown in the kitchen garden of the back yard. Their phenolic contents are responsible for their antioxidant properties. The present paper has been undertaken to consider pot experiments in the soil of Urga village of Korba district. As previous works have found the performance of genotypes in the growth and yield in some cases of medicinal plants. These plants, *A. paniculata* and *C. igneus* show pronounced phenolic contents and hence their free radicals scavenging activity.

Keywords: Fly- ash, genotypes, protease activity 1,1 DPPH (Diphenyl 1-2 picryl Hydrazyl), Antioxidant activity, Atherosclerosis.

INTRODUCTION

The present paper has been under taken to consider the pot experiment with a view the following points.

1. The performance of genotype of the plants *Andrographis paniculata* and *Costus igneus* (The Insulin plant) on the acidic soil of Urga village Korba district (C.G.). The performance of genotypes have been found the growth and yield on the some cases of medicinal plants. [1,2].
2. The soil of Chhattisgarh is acidic or acid prone Fly ash amended soil has been reported to be suitable in soil protease activity. [3] Soil respiration and rise in plant growth parameters.
3. Adams F. et al (1966) found that the effects of chemical activities have been found to affect cotton root penetration acid soil, Soil Sc 101, 193-98. [4].
4. Not only still but geography also influence yield of bioactive compounds qualitatively and quantitatively.

EXPERIMENTAL PROCEDURE

Estimation of chlorophyll content on the leaves

Leaves are grind to a fine pulp with the addition of 20 ml of 80% acetone. Leaves are set for the production of bioactive compounds. This occurs in

chloroplasts as green pigments in photosynthetic plant tissue.

They are readily extractable in organic solvents such as ether or acetone [5].

Mg of total Chlorophyll g/ tissue.

$$\frac{20.2 (A_{645}) + 8.02 (A_{663}) \times V}{1000 \times W}$$

Where A = Absorbance at specific wavelength.

V = Final volume of Chlorophyll extract in 80% acetone.

W = Fresh wt. of tissue extract.

Results of total chlorophyll = 3.9 in 10% fly ash treated soil + spray of plant hormones sprayed in pots (*A.paniculata*) = 3.9 %

Results of total chlorophyll in pots of *C. igneus* with 10% plant hormones sprayed (In *C. igneus*) = 4.00

Results of phenols (g/100g) in *A. paniculata* = 5.20 g phenols in 100g.

Results of phenols in (g/100g) in *C. igneus* = 6.05 g.

Total volume of antioxidant components in mg *C. igneus* (in 100g dry basis) = mg. of Ascorbic acid = 81= mg of phenols = 5g.

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Total value of antioxidant components in *A. paniculata* =
Ascorbic acid = 79 mg/100g of dry leaves.

Measurement of antioxidant activity [5]

It is determined on the basis of free radical scavenging activity of stable 1,1 Diphenyl, 1-2 picryl Hydrazyl (DPPH).

In 5 ml. volumetric flask 2 ml. of DPPH + 0.05 ml of tris buffer + 2ml. of methanol + 0.5 ml. of prepared dilution of original solution.

The % inhibition has calculated by using the equation as :-

$$\% \text{ Inhibition} = (\text{Ac} - \text{As}) / \text{Ac} \times 100$$

Where Ac = Absorbance of the Control

As = Absorbance of the Sample.

With increase in concentration there is decrease in the absorbance value, % of inhibition value increases.

In the case of *C. igneus*, more antioxidant components are present so its antioxidant properties are higher as compared to that of *A. paniculata*.

Antioxidant component of *C. igneus* = 69 mg/ 100 of dry basis. Antioxidant component of *A. paniculata* = 67 mg/ 100 of dry basis.

Figure 1. *Andrographis paniculata*



Figure 2. *Costus igneus*



RESULTS AND DISCUSSION

Chlorophyll estimation

The application of fly ash to the soil not only raises the pH of the soil solution and electrical conductivity and water holding capacity but also it raises the protease activity of the soil and plant matter in the soil with protein content is changed to simple amino acids which are taken by the early protein synthesis.

The chlorophyll content of the plant has been found to increase in both cases. So more synthetic activity on the leaf raises bioactive compounds like phenols, antioxidant components, like Ascorbic acid, β -carotin and flavonoids. In the 100g dry matter as:

1. Chlorophyll content of *C.igneus* = 70 mg/100gm. Dry matter
2. Chlorophyll content of *A. paniculata* = 67 mg/100gm. Dry matter

Phenolic content in the plants

Phenols react with phosphomolybdic acid in folin ciocalteau reagent in alkaline medium and produce blue coloured complex (Mo blue). [6]

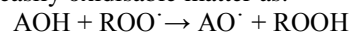
Phenols in *A. paniculata* (Whole plant) = 40 + 3.25 mg of GAE/gm.

Phenols in *C. igneus* = 38.57mg phenols/100gm. Dry material

Phenols are widely distributed in plants. Exceptions are there. Phenols like chlorogenic acid when found in the range 2-4 gm/100gm of defatted sunflower

meal are a matter of cancer. So chlorogenic acid must be tested by Titanium ion forming coloured complex which is measured at 450 nm. Otherwise phenols have their contribution to the health of living species. Phenol is important antioxidant component.

Oxygen is important for oxidation taking place in the cells. But oxidation by free radicals is harmful to the body. In foods, antioxidants have been defined as a substance that in small quantities is able to prevent oxidation of easily oxidisable matter as:



This hydrogen atom reaction effectively stops chain reaction. So antioxidant is biologically therapeutic importance. They react with free radicals and save the body system from number of diseases.

In the case of atherosclerosis

Oxidative stress in case of oxidation of low density lipoproteins (LDL) plays an important role in atherogenesis. As a consequence of antioxidants have antiatherogenic potential by inhibiting free radical oxidation [7].

Nature is bountiful for the rich and the poor. So *A. paniculata* flowers are antioxidant and free radical scavenging in nature. Its exhanolic and water extract have been used as purigative, analgesic, potential antitumour, antifungal, antiplasmodic and diuretic in nature. [8-10] *A. paniculata* contains greater percentage of ascorbic acid

(100%), flavonoids 0.3.01%, polyphenol 22.495 and tannin 44.02%.

So, antioxidant properties are prevalent in nature and contribute to the better treatment of the humans and animals. So, not only atherosclerosis, but also strokes, Alzheimers disease, Parkinsons disease, Cancer, Diabetes and diabetic complication have been prevented to many extent.

CONCLUSION

Free radicals play a critical role in carcinogenesis. DNA has 4 bases. Guanine is most easily oxidized out of the four as its oxidation potential is lowest i.e. 1.29 V against normal hydrogen electrode.

Adenin has 1.42 V

Cytocine has 1.6 V

Thiamine has 1.7 V

So DNA damage of Guanine may lead to Cancer. [11].

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