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**MEDICINAL PROPERTIES OF THE *Coleus forskohlii* AND  
*Andrographis paniculata***

**Kavita Patel\*, Manish Upadhyay, L.K. Thethwar**

Department of Chemistry, Dr. C.V.Raman University Kargi Road Kota, Bilaspur, Chhattisgarh, India 495001.

**ABSTRACT**

*Andrographis paniculata* (King of bitters) is a plant that is native to south Asian countries such as India and Shrilanka. It is also known as Kalmegh. The leaf and underground stem are used to make medicine. *Andrographis* is frequently used to preventing and treating the common cold and flu (Influenza). Some people claim *Andrographis* stopped the 1919 flu epidemic in India, although this has not been proven. *Andrographis* is also used for a wide assortment of other conditions. It is used for digestive complaints including diarrhea, constipation, intestinal gas, colic and stomach pain. It also used for liver complaints including an enlargement of liver, jaundice and liver damage due to medications, for infections including leprosy, pneumonia, tuberculosis, gonorrhea, syphilis, malaria, cholera leptospirosis, rabies sinusitis and HIV/AIDS, and for skin complaints like wounds, ulcers and itchiness. *Coleus forskohlii* herb extract is derived from roots. *Coleus* is used in India folk medicines and is a traditional digestive remedy. *Coleus forskohlii* has been traditionally used to treat high blood pressure. Other benefits include help in losing weight by improving the breakdown of fats, improving digestion and nutrient absorption, lowering cholesterol and immune system support. It is also effective in skin problems as eczema and psoriasis. Lowers hypertension, heart failure and angina. The active photochemical in *Coleus forskohlii* forskohlin, was discovered in 1974. So both the plants are very important and used in the treatment of various diseases.

**Keywords:** *Andrographis paniculata*, *Coleus forskohlii*, Andrographolide, Medicinal potential.

**INTRODUCTION**

These two plants, i.e. *Coleus forskohlii* and *Andrographis paniculata* are easy to grow and proliferate. Their medicinal properties are reflected in different ways and potentialities.

For example, *C.forskohlii* extract has 95 % forskohlii. It is an important bioactive compound Fig no.-1 below shows spectrum of potential therapeutic value.

**Pharmacokinetics**

Forskohlii increase an enzyme called adenylase cyclase which increases cellular cyclic adenosine monophosphate (C.AMP).

C.AMP causes several physiological and biochemical effects such as:

1. Inhibition of platelet activation and degranulation.
2. Increased force of contraction of the heart muscles.
3. Relaxation of the arteries and other smooth muscles, vasodilation.

4. Increased insulin secretion.

**Uses and benefits of coleus**

1. Effective in skin problems as eczema and psoriasis.
2. Lowers hypertension, heart failure and angina.
3. Studies in Albinorats have indicated the use of coleus for Asthma, intestinal colic, uterine cramps, as well as painful urination.
4. Important for weight loss as it break down the increased fats and prevents the synthesis of adipose tissue. It helps to increase thyroid hormone production and increases metabolism in the cells.
5. It increases digestive and malabsorption disorder through its ability to increase saliva, HCL, pepsin, amylase and pancreatic enzymes and increase nutrient absorption in the small intestine [2-4].

### Pharmacopotential of *Andrographis paniculata*

The aerial part of the plant contains a large number of chemical constituents, mainly lactones, diterpenoids, diterpene glycosides, flavonoids and flavonoid glycosides. The plant has been reported as having antibacterial, antifungal, antiviral, hypoglycemic, hypocholesterolemic and adaptogenic effects [5].

### MATERIALS AND METHODS

Colored photographs of the two plants next along with *Curcuma cassia* are given in the page.

1. Chlorophyll estimation of *C.forskohli* and *A. paniculata* were estimated as the method described in the book, biochemical methods by S.sadashivam and A. Maniekam [14].
2. Phenolic contents were estimated according to the methods described in the book of the same authors.
3. Antioxidant properties were estimated by DPPH free radical scavenging activity.

The results of the two plants are described below in the table no 1.

**Table 1. Antioxidant properties**

S.No.	Plant species	Chlorophyll total	Total phenolic compounds	Antioxidant properties
1.	<i>C.forskohli</i>	4.5 mg/100 gm tuber	2.5 mg/100gm	55%
2.	<i>A. paniculata</i>	5.00 mg/100 gm whole plant	3.00 mg/100gm	80%

### Experimental on rats

*C. forskohli* and *A. paniculata* are used as antidiabetic medicines.

In the present work decoction of the two extracts were used and it was found that the decoction treatment restored impaired estrous cycle in alloxan induced rats.

### RESULTS AND DISCUSSION

Both the plants are very important and used in the treatment of various diseases.

In the *C. forskohlii* extract 'forskohlin is 95% present .Its fat removing properties are well known as described in the present paper. But such property has not been shown by the *Andrographis paniculata*

Phenolic content is higher in the body of the plant *Andrographis paniculata* so it has higher antioxidants

property as reported in the present work. Since the tuber is plant has phenols the chlorogenic phenols is present in the tuber of *C. forskohlii* as reported by the test [20%  $TiCl_4$  in conc. HCl is added in the drops to the acetone extract of the tuber, a color (pink is obtained)] such test was not given by *Andrographis paniculata*.

### CONCLUSION

Antioxidant property is higher in *A. paniculata* extract. It removes the oxygenates free radicals, so it is used in the treatment of cancer, Parkinson's disease, diabetes mellitus effectively.

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### REFERENCES

1. De souza NJ. *Coleus forskohlii* Briq – a source of forskohlin, Recent advances in medicinal, Aromatic and spice crops. (Ed. S.P. Raychoudhary). Today, 1991.
2. Arner P. Adrenergic receptor functions in fat cells. *Am J Cli Nutri*, 55, 1992, 2285- 2365.
3. Greenway FL et al. Regional fat loss from thigh in obese women after adrenergic modulation. *Clin Ther*, 9(6), 1987, 663–669.
4. Mariya Paul et at. On the high value of medicinal plant. *C. forskohlii* Briq. *Higeia J D Med*, 5(1), 2003, 64–73.
5. Shahid Akbar. *Andrographis paniculata*, A Review of Pharmacological Activities and clinical effects. Alternative medicine Review, 16(1), 66. A Monograph. 2011
6. Choudhary, B.R. et al. Andrographolide and *A. paniculata* extract, in vivo and in vitro effects on hepatic lipid peroxidation. Method fined Exp. *Clin Pharmacol*, 6, 1984, 481 – 485.
7. Wiart C.et al. Antiviral properties of ent labdense diterpenes of *A. paniculata* Nees, inhibitors of herpes simplex virus. *Phytother Res*, 19, 2005, 1069 - 1070
8. Coon JT. *A. paniculata* in the treatment of upper respiratory tract infection. A systemic review of safety and efficacy. *Planta Med*, 70, 2004, 293 – 298.
9. Gabrielian, E.S.et al. A double blid Placebo Study of *A. paniculata* in the respiratory tract infections including sinusitis. *Phytomedicine*, 9, 2002, 589 – 597.
10. Tan B.K. H. et al. *A. paniculata* and cardiovascular system. Herbal and Traditional Medi. system. Packer L. Eds. CRC Press. Taipei, 2008, 441 – 456.
11. Borhanuddin M et al. Hypoglycemia effects of *A. paniculata*, Nees on non-diabetic rabbits. Bangladesh. *Med Res Council Bull*, 20, 1994, 24–26.

12. Akbarsha MA et al. Biochemical changes in the testis and male accessory organs of albino rats on the treatment with *A. paniculata* Nees complementary *Animal Physiol*, 28, 1993, 421-426
13. Sheeja K, Kuttan G. Modulation of immune responses is highly relevant in tumour cells destruction in mice after treatment with *A. paniculata*. *Integer cancer Theapy*, 2007, 66-73.
14. Sadashivam S and A Maniekam. *Biochemical methods* New Age International (P) Ltd. New Delhi, 1996, 193-194.