



Fluorescence Analysis of Leaf Extract of *Anogeissus latifolia*

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Abstract: In the present investigation, the fluorescence analysis was carried out to characterize the dry leaf powder of *Anogeissus latifolia* to detect the functional groups of different bioactive compounds present in the sample. It has been studied after treatment with solvents such as 1 N HCl, H₂SO₄, Acetic acid, Acetone, Aqueous NaOH, Ferric chloride, Methanol, Ethanol, Ether, chloroform and Benzene. These solutions were observed under ordinary light, and UV of short wavelength (254 nm). The result showed the presence of various active phytochemicals after the treatment with different solvents tested.

Introduction:

From ancient time plant are used as a part in the medicinal system, now a days they hold attention in modern pharmaceuticals world also. In past, Man were using the plant without their knowledge of active component as a home remedy for the treatment of human and animal diseases. They were used for many infectious diseases as herbal remedies at the household level (Hamburger and Hostettman, 1991). Medicinal plants have proved to be very helpful for the cure of various human ailments. Generally, herbal medicines are commonly used by the public because they are natural, healthful and without side-effects (Mordi and Akanji, 2012). Different medicinal plant extract are used to increase the body's immune system and lower the chance of different types of allergies. They are the rich source of compounds that exhibit numerous biological activities that promote health effects (Mallikharjuna et al., 2007). Majority of the world's population depends on plant material derived medicines for curing diseases (Talreja, T. 2011).

Anogeissus latifolia is an important medicinal plant that belongs to the family Combretaceae. *A. latifolia* is commonly known as chall, bakli, dhau, dhawa, dhawra or dhaora. It is large or moderate sized dry deciduous forest plant which has many economic importance. Bark and leaf are used to make the medicine. The chall plant is generally used by the local people for the cure of sun dry stomach diseases, urinary tract infections, skin diseases, liver complaints, fever, epileptic fits etc. Stem bark is useful in cough, colic, diarrhoea, dysuria, liver complaints, snakebite and skin disease. It possesses antiulcer, antidiabetic, anticancer, antihyperlipidaemic, anti-inflammatory and antimicrobial properties. Its gum is known as ghatti gum which is an important commercial exudate (Whistler, 1982). Gum is used as binding agent in

pharmaceuticals and in preparing sweets as well as cold drinks. It is included in the list of silk-producing non-mulberry plants (Srivastav et al., 1990).

The medicinal activity of plant is due to the presence of phytochemicals that protect human from various diseases (Savithamma et al., 2011). Phytochemicals are the bioactive non-nutrient plant components present in different parts of the plant that are help full in reducing the risk of major chronic diseases (Blessy et al., 2012). The biologically active compounds of plant are carbohydrates, alkaloids, phenols, flavonoids, terpenoids, saponins, tannins, glycosides, lignins and aminoacids. Different components of plant material exhibit a phenomenon known as fluorescence in visible as well as in UV light. Fluorescence is an important parameter of pharmacognostical evaluation in qualitatively analysis of plant materials (Gupta et al., 2006). The main objective of the present investigation is to analyse the fluorescent characters of leaves of *Anogeissus latifolia*.

Materials and Methods:

In the present study, dry leaf powder of medicinal plant *A. latifolia* was used. Fluorescent analysis of the leaf powder of plant was carried out.

Collection of Plant Material :

Anogeissus latifolia leaves was collected from forest complex, Pinjore, Haryana, (India) in the month of October, 2016. In running tap water the collected leaves were washed and then dried under shade at room temperature for 18-20 days. Then, they were crushed to form fine powder and stored in airtight glass bottles at room temperature.

Fluorescence Analysis

Different parts of plant show different fluorescence under ultraviolet radiation. For fluorescence, each treated samples were observed under ordinary light, then UV of short wavelength. Fluorescence was used for the identification of plant and powdered drug (Jarald and Jarald, 2007). The fluorescence study of dried leaf powder of *A. latifolia* was carried out by treating with different chemicals. If the compound of extract are not fluorescent, then in that case they are converted into fluorescent derivatives by applying chemical reagents. *A. latifolia* leaf powder was treated with freshly prepared alkaline, acid solution or different solvents. They were subjected to fluorescence analysis in daylight and in short UV- light (254 nm).

Result:

The dry leaf powder of the plant sample were extracted in different chemical agents (acetic acid, H₂SO₄, FeCl₃, 1N HCl, Aq. NaOH, acetone, methanol, ethanol, ether, chloroform and benzene). The fluorescence analysis of these treated samples were observed under visible

light, UV light (245 nm) and recorded in Table-1. The fluorescence analysis of material showed different shade of yellowish or green colour under visible light and UV light as shown in Table - 1 when treated with different applied chemical agent except aq. NaOH.

Table-1: Dry leaf powder of the plant sample were extracted in different chemical agents and fluorescence observation under visible light and UV light (245 nm).

Treatment	Plant material	Treatment with chemical reagent	Observation	
			Visible light	UV light (245 nm)
L1	Leaf powder	1 N HCL	Green	Greenish yellow
L2	Leaf powder	H ₂ SO ₄	Dark yellow	Green
L3	Leaf powder	Acetic acid	Light green	chartreuse green
L4	Leaf powder	Acetone	Pale green	Fluorescent green
L5	Leaf powder	Aqueous NaOH	nil	Purple
L6	Leaf powder	Ferric chloride	Greenish	Yellowish green
L7	Leaf powder	Methanol	Yellowish	Dark Green
L8	Leaf powder	Ethanol	Yellowish green	Green
L9	Leaf powder	Ether	Dark green	Yellowish green
L10	Leaf powder	chloroform	Pale yellow	Light green
L11	Leaf powder	Benzene	Yellowish green	Light green

Some compound of crude drugs are not fluorescent but they may be converted into fluorescent derivatives by applying the chemical reagents (Kavitha, 2014). So, fluorescence can be used as an important parameter for the pharmacognostical evaluation (Gupta et al., 2006 and Ansari, 2006). These results are similar as well as supportive with *Cardiospermum helicacabum* (Viji et al., 2010) leaf extract of *Terminalia travancorensis* (Lakshmi et al., 2012), *Cajanus cajan* (Ramaswamy et al., 2013), *Lasia spinosa* (Kumar et al., 2013) and *Trichosanthes dioica* (Kavitha, 2014).

Conclusion: The fluorescence observations are very important to check any adulteration in the plant powdered drugs. The present study may be helpful to the other researchers as well as pharmaceutical companies for further isolation and study of bioactive compounds present in the dry leaf powder of *A. latifolia*.



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