IJPSR (2016), Vol. 7, Issue 6 (Research Article)

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 25 March, 2015; received in revised form, 16 May, 2016; accepted, 24 May, 2016; published 01 June, 2016

PHYTOCHEMICAL STUDIES OF TWO SELECTED UNANI MEDICINAL PLANTS OF KALABURAGI REGION, KARNATAKA, INDIA

Pratima Mathad, Sumayya Sikandari*, Jyothi Honnalli and Anil Kumar Patil

Department of Botany, Gulbarga University, Kalaburagi, Karnataka, India.

Key words:

Phytochemical screening, Elemental analysis, Comparative study, *Butea monosperma*, *Nigella sativa*.

Correspondence to Author:
Sumayya Sikandari

Research Scholar
Department of Botany,
Gulbarga University, Kalaburagi,
Karnataka, India.

Email: sumayya_gadwal@rediffmail.com

ABSTRACT: The present work was designed to perform the comparative study between the seeds of two selected plants i.e., *Butea monosperma* & *Nigella sativa*. The study includes phytochemical screening of primary and secondary metabolites, physico-chemical analysis, pharmacological studies, elemental analysis, and flouroscent studies. The comparative priliminary studies of *Butea monosperma* and *Nigella sativa* seeds in different solvent extracts shows the presence of primary metabolites such as carbohydrates, proteins, lipids and secondary metabolites such as Alkaloids, phenolic compounds, Flavonoides, Steroids, Tannins & saponins *etc*. In the preliminary screening of *Nigella sativa* ethanolic extract was more effective and shows the presence of maximum number of secondary metabolites, whereas In the preliminary screening of *Butea monosperma* methanolic extract was more effective and shows the presence of maximum number of secondary metabolites. The pharmacognostic studies was also carried out in order to check the adulteration and quality of crude drugs, which involves the evaluation of organoleptic characters such as colour, odour, taste and other macroscopical physical characters. The comparative physicochemical analysis of total ash was carried out to determine the quantity of acid insoluble ash (Inorganic contents), water soluble contents, extractive values of *Butea monosperma* and *Nigella sativa* Seeds. The observations shows that 9.21% of total ash and 5.96% of acid insoluble ash was found to be present in *Butea monosperma* seeds, and total ash value was 8.14% and acid insoluble ash was found to be 4.20% in the *Nigella sativa* seeds. This variation in the contents of ash is probably due to the nature of metabolites as well as elements they Possess. Further, the quantitative determination of mineral elements was carried out by using the device i.e., Atomic Absorption Spectrophotometer present in the Department of USIC Gulbarga University, Kalaburagi. The quantitative estimation of seven elements was carried out viz Iron, Zinc, Manganese, Chromium, Copper Cadmium, and Lead. The results were compared with W.H.O recommended values. The highest quantity of Iron was found to be present in the seeds of *Butea monosperma i.e.,* 2.58mg/L whereas in the seeds of *Nigella sativa* it was found to be present 2.97mg/L. Out of seven elemental analysis the Iron was present in large quantity, and Manganese was present in traces i.e., 0.78±0.05 in *Butea monosperma* and 0.86±0.006 in *Nigella sativa*.

INTRODUCTION: India is a land of Biodiversity. The plants are the source of medicines since ancient times. According to world health organization 80% of the population in the world still depends on the traditional medical practitioners and plants for their primary medicinal needs [1]. India is a land where various traditional medicinal systems together exists, all the medicinal systems are plants based.

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.7(6).2597-05

Article can be accessed online on: www.ijpsr.com

DOI link: http://dx.doi.org/10.13040/IJPSR.0975-8232.7 (6).2597-05

More than 7500 plants were being used as the medicinal plants in the traditional medical systems of India, though plants varies in there curing properties because of their bio-active constituents, such two medicinal plants are selected in this study belonging to two different families, different in origin but are extensively utilised for curing many number of similar diseases in the Hyderabad karnataka region. The selected plants are *Butea monosperma and Nigella sativa.*

The *Butea monosperma* belongs to family Fabaceae originated in India **Fig.1**. It is a medium sized tree with 20-40 feet height and distributed in Tropical Asia and also in mountain regions of India, Burma and few asian countries. The plant is used in various systems of medicines such as Unani,

Ayurveda, Siddha, Homeopathic, and also used by rural & tribal peoples in curing various disorders. This plant is a source of timber, resins, fodder, dyes and also medicines. The plant is traditionally reported to possess astringent, aphrodiasic, antihelminthic, antimicrobial and antiasthamatic property [2]. Seeds have antihelminthic property especially for roundworms and tapeworms. Flowers yield a brilliant yellow colouring matter due to the presence of chalcones and gives the appearance of Flame of forest. The flowers of this plant appear in february and stay on nearly up to the end of April. The diameter of the pod is nearly 2-4cm, each pod consist of a single kidney shaped flat seed. The herbal medicines may provide potentials with less or no side effects.

FIG.1: *BUTEA MONOSPERMA* LAM.

Nigella sativa Linn is a annual flowering plant belongs to family Ranunculaceae **Fig.2**. It is native to southwest Asia and cultivated in countries like Middle east Mediterranean region, South Europe, Syria, Turkey, Saudi arabia, Pakistan, India. This tree species has been of interest to researchers because it has a long history of folklore usage in various systems of medicines. The seeds are said to be **"**The cure for all the diseases except death**"** In the list of natural drugs (All Tibb Al Nabvi) and recommended by Islamic Prophet (PBUH) [3].

The seeds are blackish in colour triangular in shape 4-5mm in size contains many number of bioactive constituents extensively used in Islamic medicine for its healing power, it is considered as a miracle herb [4]. Traditionally *Nigella Sativa* seeds are used as a condiment in curries, indigestion, antiseptic, antibacterial, acne treatment, anti- hepatotoxicity and to arrest vomiting sensation roasted seeds are taken orally. Although several studies have reported the safety of consuming *Nigella sativa* seeds but relatively unsafe if consumed for prolonged periods of time [5].

FIG.2: *NIGELLA SATIVA* LINN

A large number of plants are claimed to posses the antibiotic properties in the various s traditional systems of medicines and are also used extensively by the tribal peoples worldwide. Plants have been known to cure various diseases and are constantly being explored for their potentials of curing diseases without any side effects, This curative property of plants is believed to be because of the presence of Bioactive constituents. Bioactive constituents of plants includes primary metabolites and secondary metabolites. Primary metabolites such as Carbohydrates, Proteins, Lipids, are produced and used by the plants itself for their own growth, development and reproduction but the secondary metabolites are helpful for the plants to fight against the pathogens, and since from the time immemorials used by the humans as colouring, flavouring agents and as main constituents of antibiotics and drugs.

In this present work an attempt has been made for the comparative phytochemical screening of two selected plants which belongs to two different families, different in origin, but related in curing the same diseases in different geographical areas practiced in various traditional system of medicines. The seeds of *Butea monosperma* are antidiabetic, antihelminthic, diuretic, and anti – inflammatory [6]. Whereas the seeds of *Nigella sativa* are also antihelminthic, antidiabetic, diuretic, and anti-inflammatory [7].

MATERIALS AND METHODS:

Preparation of Extracts for preliminary studies: The seeds samples of both the selected plants *i.e., Butea monosperma* Lam and *Nigella sativa* Linn were shade dried and ground into fine powder with the help of mixer grinder. About 100g of powdered material was loaded in soxhlet apparatus every time with 1000ml of Solvent, in the same way various solvent extracts were obtained one after the another such as methanol, ethanol, pet.ether, chloroform were used to get the extracts. The extracts obtained with each solvent were filtered separately through Whatman No. 1filter paper and the Filtrates were used for Phytochemical analysis as per the standard prescribed methods .

Qualitative estimations of primary and secondary metabolites:

1. Test for carbohydrates:

Molisch's Test: To the extract few drops of Molish's reagent and add 2ml of concentrated H_2SO_4 was added along the walls of the test tubes and allowed to stand for 2 minutes, formation of reddish violet colour at the junction of the two solutions indicate the presence of carbohydrates.

Benedict's Test: To the 0.5ml of extract 0.5ml of Benedicts reagent was added and heated in the boiling water bath for 5 minutes the formation of characteristics brown colour indicates the presence of carbohydrates.

Fehling's Test: Filterates were hydrolysed with dil.Hcl, neutralized with alkali and heated with Fehling's A & B solutions. Formation of red precipitate indicates the presence of reducing sugars

2. Tests for Amino Acids and Proteins: Proteins are complex nitrogenous compounds which occur in plants and animals. Proteins on hydrolysis with strong organic acids or by enzymes yield a mixture of amino acids.

Biuret Tests: To the 2ml of extract add 2% $CuSO_4$ (2ml), 1ml of ethanol potassium hydroxide (2ml) the formation of pink colour is observed that indicates the presence of proteins.

Ninhydrin Test: To the extract Ninhydrin reagent was added the formation of Blue colour indicates the presence of amino acids.

Millons Test: To the extract millons reagent was added white ppt forms which turns red on waiting indicates the presence of proteins.

Xanthoproteic's Test: The extracts were treated with few drops of conc. Nitric acid. Formation of yellow colour indicates the presence of proteins.

Ferric Chloride Test: Extract was mixed with ferric chloride solution, Formation of blackish green colour indicates the presence of proteins.

3. Flavanoids Tests: To the extract add few magnesium turning and add few drops of concentrated H_2SO_4, formation of magneta colour indicates the presence of flavanoids.

Lead Acetate Test: Extract was mixed with lead acetate solution (v/v), formation of white curdy ppt indicates the presence of flavanoids.

Shinoda Test: Extract was mixed with HCl and few Mg turnings the deep cherry colour doesn't appear indicates the presence of flavanoids.

4. Test for Glycosides:

Hemi acetyl form of sugar reacts with a molecule of an alcohol to form the acetyl derivative, which are generally known as glycosides. Those glucose are known as glycosides and those fructose is known as fructosides.

Keller-Killiani Test: The extract was mixed with a few drops of glacial acetic acid and boiled for a minute and cooled. To this solution 2 drops of ferric chloride solution was added. The contents were transferred to other test tube containing concentrated H_2SO_4, formation of reddish brown ring at the junction of two layers indicates presence of glycosides.

Molish's Test: To the 1ml extract molish's reagent was added and 1ml of concentrated H_2SO_4 dropwise through the sides of the tube, formation of reddish ring at the junction of two layers indicates the presence of glycosides.

5. Tests for Phenols:
1ml of extract was mixed with 0.5ml ferric chloride solution. Formation of intense colour indicates the presence of phenols.

Ellagic Acid Test: The extract was mixed with few drops of 5% glacial acetic acid(v/v) and sodium nitrate(w/v), muddy yellow or drive brown or Niger brown colour indicates the presence of phenols.

6. Tests for Tannins:
The extract was mixed with Gelatin solution formation of white ppt indicates the presence of tannins.

NaCl Tests: The extract was mixed with a few drops of NaCl, formation of precipitate indicates presence of tannins.

7. Test for Steroids:
Steroids are the larger class of organic compounds occurring widely in plants and animals and are characterized by the presence of anhydrocyclo pentonophenanthrene ring system which may be partially reduced or otherwise modified. e.g, Sterols, Bile acids and Adreno corticoids.

Salkowski Test: To the 1ml of extract concentrated H_2SO_4 was added, formation of wine red colour indicates presence of steroids.

Liberman-Burchard Tests: To the extract, few drops of acetic anhydride was added and mixed well, 1ml of concentrated H_2SO_4 was added from the side of the test tube, formation of red ring at the junction of the two layers indicates presence of steroids.

8. Test for Saponins: Saponins are plant steroidal glycosides which have the property of forming foams in water (like soap solution). They act by lowering the surface Tension of water.

Aqueous Test: To the extract, water is added and shaken well the foamy like appearance indicates The presence of saponins.

9. Tests for Alkaloids:
Mayer's Reagent Test: To the extract 2ml of Mayer's reagent and 1ml of hydrochloric acid were added, the formation of yellow ppt indicates presence of alkaloids.

Wagner's reagent test: To the extract add 2ml of Wagner's reagent and 1ml of dilute HCL, formation of orange ppt indicate presence of alkaloids.

Dragendroff's reagent Tests: To the extract 2ml of Dragendorff's reagent and 1ml of dilute HCL was added, the formation of orange ppt indicates the presence of alkaloids

Quantitative estimations of primary and secondary metabolites:
The quantitative estimations of primary and secondary metabolites of *Butea monosperma* and *Nigella sativa* seeds were carried out using the standard methods

1. Estimation of total Carbohydrate

2. Estimation of proteins

3. Estimation of Lipids

4. Estimation of Flavanoids

5. Estimation of Tannins

6. Estimation of Alkaloids

7. Estimation of total phenols

8. Estimation of saponins.

Comparative Physico-Chemical analysis Pharmacognostic studies of *Butea monosperma* and *Nigella sativa* seeds:
The comparative physicochemical analysis of total ash was carried out to determine the quantity of acid insoluble ash (Inorganic contents), water soluble contents, extractive values of *Butea monosperma* and *Nigella sativa* seeds. The pharmacognostic studies was also carried out in order to check the adulteration and quality of crude drugs, which involves the evaluation of organoleptic characters such as colour, odour, taste and other macroscopical physical characters.

Quantitative estimation of mineral elements by atomatic absorption spectophometric (AAS) method:

The total ash content of the plant material thus obtained as mentioned earlier was used for the estimation of few mineral elements (Macro and Micronutrients).

The total ash content of the drug was dissolved in 40ml of 50%(v/v)HCL in the China dish and covered with a watch glass. The suspension was digested on a water bath for 30 min. The watch glass was removed after cooling and washed with distilled water. This was filtered through whatman filter paper No.44 (ashless). 10ml of filtrate was taken in a 100ml volumetric flask and made its final volume to 100ml by adding distilled water. These stock solutions were used for the estimation of minerals.

The stock ash solution was used for the detection and estimation of the minerals namely Iron, Zinc, Manganese, Magnessium, Chromium, Copper, Cadmium, and Lead using Atomic Absorbption Spectrophotometer) present in the Department of USIC, Gulbarga University, Kalaburagi. Five readings were taken for each mineral and its content were determined using the graph plotted for the standard.

Fluorescent studies of powder drugs:

The dried and powered plant material of *Nigella sativa* and *Butea monosperma* seeds was sieved separately through the sieve to get the powdered drug. This was used for fluorescent studies. A pinch of this powder was taken in a clean test tube with about 10 ml of solvent. Likewise, several tubes were made by adding various solvents such as distilled water, HCL, H_2SO_4 ,Methanol, Ethanol, acetic acid, n-hexane, acetone, ethyl acetate, benzene, chloroform and petroleum ether.

All the tubes were shaken well and incubated for about 30min. The colour of the drug solutions thus obtained was observed for their characteristic colour reaction under the visible light (flourescent tube) and the ultra violet light (UV_{366} nm) and were recorded by comparing with the standard Asian paint colour chart. (Chase and Pratt, 1949).

Statistical analysis:

The numerical data of all the activities of *Butea monosperma* and *Nigella sativa* is represented as the Mean value ± standard error of triplicate results and the significance was derived using Tukey's HSD pairwise comparision by ANOVA.

RESULTS:

In the present study, the successive crude extracts of *Butea monosperma* Lam and *Nigella sativa* Linn seeds such as aqueous, ethanol, methanol, pet.ether, chloroform extracts were qualitatively screened for the occurrence of various primary and secondary metabolites such as carbohydrates, proteins, lipids, alkaloids, flavanoides, glycosides, lignin, phenols, saponins, steroids and tannins by treating with various chemical reagents. The reactions with these reagents have shown the presence of several metabolites in *Butea monosperma* seeds and *Nigella sativa* seeds the results are recorded in the below mentioned **Table 1**.

The various extracts of *Butea monosperma* Lam seeds, such as aqueous, ethanol, methanol, pet ether and chloroform extracts were used for phytochemical screening of primary and secondary metabolites. ethanoic extract was found more effective and showed the presence of maximum number of plant constituents such as carbohydrates, alkaloids, flavonoides, saponins, phenolic compound and tannins. Among the same five extracts of *Nigella sativa* Linn seeds methanolic extract showed the presence of maximum number of plant constituents such as carbohydrates, proteins, alkaloids, glycosides, flavonoides, saponins, phenolic compound, steroids and tannins. The chloroform extract of *Nigella sativa* seeds and *Butea monosperma* seeds was found least effective and shows the presence of only one phytochemical in each.

The seeds of *Nigella sativa* shows the presence of alkaloids, flavanoides and phenolic compounds in the aqueous, ethanoic and methanoic extracts whereas the same three phytochemicals were absent in pet.ether and chloroform extracts. The seeds of *Butea monosperma* shows the presence of alkaloids in the aqueous, ethanoic and methanoic extracts but absent in pet.ether and chloroform

extracts. Flavanoides and phenolic compounds were found present in aqueous and ethanoic extract of *Butea monosperma* seeds and were found absent in methanoic, pet.ether and chloroform extracts of the same plant. The seeds of *Nigella sativa* shows the absence of tannins in all the five extracts, the tannins were found present in ethanoic and methanoic extracts of *Butea monosperma* seeds. This suggests that the seeds from the family Ranunculaceae might have more useful application in ethnomedicine than the seeds from the family Fabaceae or the *Nigella sativa* seeds are comparatively more effective with respect to the alkaloids, flavanoides and phenolic compounds than the *Butea monosperma* seeds.

The Quantitative estimation of primary metabolites shows the presence of various chemical constituents present in *Nigella sativa* Linn seeds. Carbohydrate content was found high (9.70±0.35 mg/100g) followed by proteins (1.4±0.01 mg/100g) and lipid content was found very low *i.e.*, 11.60±0.35 %. The Quantitative estimation of primary metabolites in *Butea monosperma* Lam seeds also shows the presence of various chemical constituents. Carbohydrate content was found high (13.33±0.30 mg/100g) followed by proteins (2.37±0.13 mg/100g) and lipid content was found very low *i.e.*, 18.22±0.20 %. It was noticed that both the seeds shows less quantity/low level of lipids an indication that it would have little or no cholesterol, the results are tabulated in below mentioned **Table 2**. The high content of carbohydrates and proteins in *Butea monosperma* seeds reveals that it is a good source of energy.

The secondary metabolites analysis/estimations is necessary and it is the basis for the extraction, purification, separation, crystallization and identification of various phytocompounds. The quantitative analysis/estimations of *Nigella sativa* seeds shows the presence of flavonoides 2.11±0.05mg/100g, tanins 1.46±0.04mg/100g, phenols 1.74±0.05 mg/100g, alkaloides 2.05±0.04 mg/100g, saponins 3.27±0.02 mg/100g, similarly the quantitative analysis of *Butea monosperma* seeds shows the presence of flavonoides 0.07±0.03mg/1oog, tannins 0.090±0.02mg/100g, phenols 1.60±0.03mg/100g, alkaloids 2.60±0.01 mg/100g and saponins 4.01±0.04mg/100g. The results of quantitative estimations of both the plants shows comparatively the *Nigella sativa* seeds are rich in flavonoides, tannins, phenolic compounds whereas the *Butea monosperma* seeds are rich in alkaloids and saponins, the results are tabulated in below mentioned (**Table 3**).

The extractive values and other organoleptic features of *Nigella sativa* seeds and *Butea monosperma* seeds:

Among all the extracts of *Nigella sativa* seeds obtained, Pet.ether shows the highest soluble extractive value of 17.00±0.12% and the *Butea monosperma* seeds shows highest soluble extractive value of 16.00±0.26% in Chloroform (**Table 4**) apart from extractive values the nature of the extracts varies from sticky (Pet. Ether), waxy(chloroform), resinous (methanol) and powdery (aqueous), the other organoleptic characters were observed such as colour, taste, odour of crude drugs separately the observations shows black colour, Bitter-punguent taste and Aromatic odour of *Nigella sativa* seeds powder.

Light brown colour, bitter taste, and benzaldehyde odour of *Butea monosperma* seeds powder. The other macroscopical characters were also studied like length, thickness, oil colour, shape of seed *etc*. The above mentioned characters are helpful in differentiating the herbal crude drugs from their adulterants and additives (**Table 5**).

Elemental analysis, Flourescent studies:

The comparative elemental analysis between the seeds of *Butea monosperma* and *Nigella sativa* along with the WHO recommended values was carried out to see the drug whether crossing the levels, by using the AAS(Atomic Absorption Spectrophotometry)(**Table 6**).

1) Iron: Plants obtain iron in the form of ferric ions (Fe^{3+}) from soil. It is required in larger amounts in comparision to other micronutrients. It is an important constituents of proteins involved in the transfer of electrons like ferrodoxin and cytohormones. It activates catalase enzyme, and is essential for the formation of chlorophyll. The estimated value of Iron in our samples was 2.89±0.05ppm in *Nigella sativa* and 2.52±0.03ppm in *Butea monosperma* seed samples.

2) Copper: It is absorbed as cupric ions (cu^{2+}) from the soil. It is essential for the overall metabolism in plants. It is associated with the enzymes involved in redox reaction. The estimated value of copper in our samples was 0.57±0.03ppm in *Nigella sativa* and 1.67±0.09 ppm in *Butea monosperma* seed samples.

3) Manganese: It is absorbed as manganous ions (Mn^{2+}) from the soil. It activates many enzymes involved in photosyntesis, respiration and nitrogen metabolism. The best defined function of manganese is in the splitting of water to liberate oxygen during photosynthesis. The estimated value of copper in our samples was 1.79±0.05 ppm in *Nigella sativa* and 0.57±0.04 ppm in *Butea monosperma* seed samples.

4) Zinc: Plants obtain zinc as (zn^{2+}) ions. It activates various enzymes, especially carboxylases. It is also needed in the synthesis of auxins. The estimated value of copper in our samples was 2.07±0.08 ppm in *Nigella sativa* and 1.65±0.03 ppm in *Butea monosperma* seed samples.

5) Magnesium: It activates many enzymes involved in photosyntesis, respiration and are involved in the synthesis of DNA and RNA .Magnessium is a constituent of the ring structure of chlorophyll an helps to maintain the ribosome structure. The estimated value of copper in our samples was 0.86±0.06 ppm in *Nigella sativa* and 0.78±0.05ppm in *Butea monosperma* seed samples.

To see the reaction of crude drug with various solvents the Fluorescent study was performed in Visible as well as UV lights. The results shows in the visible light in hexane both the crude drugs were showing yellow colour, and rust colour in HCl and H_2SO_4. In UV light with water both the drugs shows eletric bulb colour, with Acetone citadell 7406 colour, raw drugs shows blue colour, these similarities in emission of light may be due to similar phytochemical constituents (**Table 7**).

TABLE 1: COMPARATIVE PHYTOCHEMICAL SCREENING OF *NIGELLA SATIVA* AND *BUTEA MONOSPERMA* SEEDS

Phytochemical Constituents.	*Nigella sativa* seeds extracts					*Butea monosperma* seeds extracts				
	Water	Ethanol	Methanol	Pet. Ether	Chloroform	Water	Ethanol	Methanol	Pet. Ether	Chloroform
Carbohydrates	+	+	+	-	-	+	+	+	-	-
Proteins	-	-	+	-	-	-	-	-	-	-
Lipids	-	-	-	+	-	-	-	-	+	-
Alkaloides	+	+	+	-	-	+	+	+	-	-
Glycosides	+	+	+	-	-	-	-	--	-	-
Flavonoides	-	-	+	-	+	+	+	-	-	-
Phenolic comp	+		+	-	-	+	+	-	-	-
Tanins	-	-	-	-	-	-	+	+	-	-
Saponins	-	-	+	-	+	-	+	+	-	-
Steroides	-	-	+	-	+	-	-	-	-	+
Terpenoides	-	-	+	-	-	+	+	-	-	-

TABLE 2: COMPARATIVE QUANTITATIVE ESTIMATIONS OF PRIMARY METABOLITES

Sl/no	Names	Carbohydrates	Proteins	Lipids
1	*Nigella sativa*	9.70±0.35 mg/100g	1.4±0.01 mg/100g	11.60±0.35 %
2	*Butea monosperma*	13.33±0.30 mg/100g	2.37±0.13 mg/100g	18.22±0.20 %

TABLE 3: COMPARATIVE QUANTITATIVE ESTIMATIONS OF SECONDARY METABOLITES

Sl/No	Names	Flavonoides mg/100g	Tanins mg/100g	Phenols mg/100g	Alkaloides mg/100g	Saponins mg/100g
1	*Nigella sativa*	2.11±0.05	1.46±0.04	1.74±0.05	2.05±0.04	3.27±0.02
2	*Butea monosperma*	0.07±0.03	0.90±0.02	1.60±0.03	2.60±0.01	4.01±0.04

Table:4. Comparative physicochemical analysis

Sl/no	Ash values:-	*Nigella sativa*	*Butea monosperma*
1	Total ash values	8.14±0.03%	9.21±0.02%
2	Acid insoluble ash value	4.20±0.35%	5.96±0.04%
3	Water soluble ash value	4.04±0.08%	0.73±0.06%

TABLE 5: DATA SHOWING THE EXTRACTIVE VALUES, AND OTHER ORGANOLEPTIC FEATURES OF *NIGELLA SATIVA* SEEDS AND *BUTEA MONOSPERMA* SEEDS

Sl/No	Characters	Observations	
		Nigella sativa seeds	***Butea monosperma seeds***
1	Pet.Ether Extractive	17.00±0.12%	15.04±0.07%
2	Methanol Soluble Extractive	12.50±0.35%	12.99±0.05%
3	Ethanol Soluble Extractive	11.00±0.05%	12.04±0.03%
3	Chloroform Soluble Extractive	9.94±0.07%	16.±0.26%
4	Shape	Triangular	Flat Mango
5	Colour	Black	Light brown
6	Length	4-5mm	25-35mm
7	Thickness	1mm	1.5-2mm
8	Oil colour	Light red	Golden yellow
9	Seed Coat	Fused	Wrinkled
10	Odour	Aromatic	Benzaldehyde
11	Taste	Bitter-Pungent	Bitter

TABLE 6: ELEMENTAL ANALYSIS BY USING ATOMIC ABSORPTION SPECTROPHOTOMETER

Sl/no	Elements	*Nigella sativa*	*Butea monosperma*
1	Iron	2.89±0.05	2.52±0.03
2	Copper	0.57±0.03	1.67±0.09
3	Zinc	2.07±0.08	1.65±0.03
4	Manganese	1.79±0.05	0.57±0.04
5	Magnessium	0.86±.006	0.78±0.05
6	Chromium	0.01±0.03	0.14±0.01
7	Cadmium	0.12±0.01	0.01±0.01

TABLE 7: COMPARATIVE FLOURESCENT STUDY OF *NIGELLA SATIVA* AND *BUTEA MONOSPERMA* SEEDS

Sl/no	Solvents	Visible light		UV light	
		Nigella sativa	***Butea monosperma***	***Nigella sativa***	***Butea monosperma***
1	Methanol	Dark pinkish	Light creamish	Greenery 7806	Classic 1243
2	Hexane	Darkish yellow	Oilish yellow	Black greenish	Dark green 3256
3	Benzene	Dark grey	Yellowish	Dark greenish	Crimson
4	Hydrochloric acid	Blackish	Blackish	Black 3002	Blue
5	Chloroform	Dark grey	Yellowish	Darkish red	Dark cream
6	Sulphuric acid	Dark red	Rust 0569	Electric bulb 0110	Heirloom 7151
7	Pet.Ether	Light black	Light yellow	Wild lilac 0712	Blue curacao 7360
8	Water	Venetian green 0262	Bathstone 0301	Electric blue 0110	Electric blue 0110
9	Acetone	Transparent	Antique white	Citadel 7406	Citadel 7406
10	Ethyl acetate	Lavender laugh 7147	Magnolia 0387	Merie pink 0418	Mount olympus 7152
11	Acetic acid	Greenery 7806	Sand stone 3211	Blue curaco 7360	Asian blue 0144
12	Powder	Cream	Black	Blue	Blue

DISCUSSION: Phytochemical analysis is of great importance in identifying new source of therapeutically and industrially valuable compounds. The medicinal value of plants lies in some chemical substances that have a definite physiological functions in the human body. Different phytochemicals have been found to possess a wide range of medicinal properties, which may help in protection against various diseases. For example, according to the literatures and several studies alkaloids protect against chronic diseases. saponins protect against hypercholesterolemia and steroids and terpenoids show the analgesic properties. Phytochemicals especially plant phenolics constitute a major group of compounds that act as primary antioxidants. The flavanoids have protective functions during drought stress. Flavanoids may also help plants to

live on soils that are rich in toxic metals such as aluminium. Photoprotection is a predominant role of flavonoids [8]. The presence of majority of above mentioned phytochemical constituents in both the plants suggest that both are highly medicinal in nature. It is evident from the above study that the *Nigella sativa* plant shows maximum secondary metabolites so it may be comparatively more medicinal/effective than the *Butea monosperma* plant, further studies in this direction are required.

CONCLUSION: It is expected that results from this study would serve as background knowledge for further studies on plants which would result in the discovery of other medicinally usefull products from the *Butea monosperma* and *Nigella sativa* plants for which further work has to be carried out in this direction to identify and isolate the most active bioconstituent for treating the human ailments.

ACKNOWLEDGEMENT: I thank the co-author and the Chairperson Dr Pratima Mathad, Department of Botany, Gulbarga University, Kalaburagi for her kind help and support during the present investigations.

REFERENCES:

1. Ramanjaneyulu K, Bhargavi A, Evaluation of phytochemical and antibacterial activityof *Butea monosperma* leaf extracts. IJRAP, 2011; 2(5): 1563-1565.
2. Kumar A, samanta K, A multipurpose Medicinal Tree *Butea monosperma.* International Journal of Drug Discovery And Herbal Research 2012; 2(2):463-441.
3. Kamal Aisha, Zareen I, Alteration in antibacterial potentialof *Nigella Sativa* L. seeds during different phases of germination. International journal of current microbiology and applied sciences 2014; 3(3):268-282.
4. Ahmad aftab *et al.,* A review on therapeutic potential of *Nigella sativa*: A miracle herb. Asian Pac J Trop Biomed 2013**;** 3(5): 337–352.
5. Hadi Kamil zainab *et al.,* Spectacular Black Seeds (*Nigella sativa*). Medical Importance Review Medical Journal of Babylon 2013 ; Vol. 10- No. 4
6. G Mali Ravindra, and A Anita Mehta, A Review on antihelminthic plants. Natural Product Radiance 2000; 7(5): 466-475.
7. Narasimharao and Bhogireddy, Anti Inflamatory and Anti Diabetic activities with their other ethnomedicinal properties of the plants. Journal of medicinal plant studies 2013; 1(5):2520-3862.
8. Treutter D, Significance of flavonoids in plant resistance: a review. Environ Chem Lett 2006; 4:147–157.

How to cite this article:
Pratima M, Sumayya S, Honnalli J and Patil AK: Phytochemical Studies of Two Selected Unani Medicinal Plants of Kalaburagi Region, Karnataka, India. Int J Pharm Sci Res 2016; 7(6): 2597-05.doi: 10.13040/IJPSR.0975-8232.7(6).2597-05.