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Original Research Article

Euphorbia nivulia Buch. Ham.: A boon for jaundice (A case study)

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Abstract: Jaundice commonly called as the indicator of liver and gall bladder disorders, causes about 20,000 deaths every year. The disease is characterized by yellowish discoloration of the skin, eyes, sclera, urine and mucous membranes followed by indigestion and appetite loss. Jaundice becomes visible when the bilirubin level is about 2-3 mg/dl (normal level is 0.3-1.2 mg/dl.). *Euphorbia nivulia* Bach. Ham. has wonderful effect on jaundice. Its chemical composition includes flavinoids, tetracyclic terpens, lectin, phenols, alkaloids, glycosides, saponins and tannins obtained by qualitative analysis using standard procedure shows tremendous results on jaundice.

Key words: Jaundice; *Euphorbia nivulia;* bilirubin; liver

Introduction

Jaundice is commonly called as the indicator of liver and gallbladder disorder. Liver being the important and vital organ of metabolism, detoxification and excretion is often associated with distortion of these metabolic functions. About 20,000 deaths found every year is due to liver disorders (Jayachandra *et al.,* 2012). There are various reasons for developing of hepatic disorders. Some may include organic agents while other includes inorganic compounds. These hepatic disorders may either be directly predictable or maybe indirectly predicted. It is basically said that when the excretion of bilirubin is hindered, it passes into the blood, resulting in jaundice. Jaundice can also result from heamolysis i.e., excessive breakdown of red blood corpuscles in which too much bilirubin is released into the blood stream. The disease is characterized by yellowish discoloration of the skin, eyes, sclera, urine and mucous membranes followed by indigestion and appetite loss. Jaundice becomes visible when the bilirubin level is about 2-3 mg/dl while the normal level of bilirubin is calculated as 0.3-1.2mg/dl.

A persual of literature reveals that jaundice may be of different kinds. Several systems of medicines show variation in classifying this disease (Annalakshmi *et al.,* 2012). The first stage of jaundice is said to involve increased yellow pigment, in the body and is referred to as the prodromal stage. In this stage the elevated body temperature is nearly about 100-102◦F characterized by clay colored stools and dark color urine. Major complications such as pulmonary dysfunction, renal failure and sepsis are frequently encountered (Odukoya *et al.,* 2012). There are many different causes of jaundice viz. hepatitis A, hepatitis B, hepatitis C, hepatitis D, hepatitis E, liver cirrhosis, obstruction of bile ducts, gallstones, pancreatic cancer, alcoholic liver disease, inflammation of the liver, heamolytic anemia, typhoid, malaria, yellow fever, tuberculosis, certain medication and pregnancy (Sharma *et al.,* 2012). As per the global estimates, there are about 18000 deaths every year due to liver cirrhosis mainly caused by hepatits (Kuncha *et al.,* 2012). Numerous plants and herbs are used as valuable drugs from the traditional medicinal plants for treatment of liver diseases and ca 7500 plants (Annalakshmi *et al.,* 2012) are reported to be useful in curing jaundice. Based on the folk-lories and customs followed by local people it is observed that different people use different rituals for the treatment of jaundice. Some of the important and common practices are tying garland containing 1 cm long root pieces of *Boerhaavia diffusa* around the neck of the patient. It is believed by vaids and local people that as the patient recover the size of the garland increases which gradually reaches up to the liver. As to us it seems illogical and according to my observation as the tag losses the garland slips and finally reaches up to the end of the thread available in the garland i.e.,

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the liver of the patient. But unfortunately this observation of ours was incomplete as the patient removed the garland from her neck due to suffocation and itching. So we cannot find out the mythology behind the practice. The present study emphasizes the use of *Euphorbia nivulia* in jaundice and its magical results over the patient.

Materials and Methods

Our study deals with the treatment of Jaundice and effect of *Euphorbia nivulia* over it. The study was conducted in two phages. Phage I deals with the duration of jaundice and the effect of *E. nivulia* over it and phage II included the study of chemical constituents of the plant species. The study was done when the patients was suffering from jaundice while the study of the chemical constituent of the species was performed in the post graduate department of Botany, T.M.B. University, Bhagalpur. *E. nivulia* was suggested to the patient by some local people who guaranteed the effect of the plant over jaundice. The plant is commonly called as Muthla sij or Sij and is generally grown as fences, village hedge on dry waste land or as rockeries in garden. Taxonomically it is characterized as large slender shrub or small tree with flesh cylinder branches with sharp straight stipular spines. Fleshy oblanceolate, obtuse or narrowly connate based leaves develop gradually from the month of March. Further online verification of the species was also done but a very few information regarding the use of the herb in jaundice was discovered. *Euphorbia nivulia* extract did not exhibit any geno-toxicity and was also confirmed by Jamalpoor *et al.,* 2014, who suggested the herb, was devoid of mutagenic and carcinogenic effects. Hence after the confirmation of its safety, the herb was provided to the patient. The plant was collected from P.G dept. of Botany, T.M.B.U. and the white fleshy part of the stem was given to the patient every morning in empty stomach with a pinch of sugar. The dose offered was 50mg per day for ten days (i.e., 30th March to 8th April 2014) and then the dose was reduce to 25mg and was offered every alternate day. Table 1 shows the tests of the patient done during the period of jaundice (phage I).

Table 1: Tests of the patient done during the period of Jaundice

Date	Test Name	Biochemistry	Ref.Range	Observation
3rdFeb.2014	SGPT(Ifcc method)	59 IU/L	~40	Liver, Gallbladder, Spleen, Pancreas, Kidneys and Urinary bladder normal.
18thMar.2014	SGPT (Ifcc Meth.)	2686 IU/L	~40	Mid hepato-megalic liver normal shaped, Spleen, Pancreas, Kidneys normal but mallfunctioned, Gall bladder contracted.
	Serum, Bilirubin Total (Mod. Diazo meth.)	5.7 mg/dl	~0.2-1.0	
	Cyano-metheamoglobin	8.3 gm/dl	~11-15	
22ndMar.2014	Bilirubin total	**5.38** mh/dl	~0.2-1.0	Liver, Gall Bladder, Spleen, Pancreas, Kidney and Urinary Bladder enlarged, Mallfunctioned.
	HBS Ag	**negative**		
8thApr. 2014	**Liver function Test**			Minute trace found in liver, Gallbladder and Spleen.
	Total Bilirubin	1.3 mg/dl	~0.2-1.0	
	Direct Bilirubin	1.2 mg/dl	~0.0-0.2	
	Indirect Bilirubin	0.1mg/dl	~0.0-0.8	
	SGPT (Alanine amino Transferase)	22.0 IU/L	~9-43	
	SGOT (Aspartate Amino Transferase)	19.0 IU/L	~10-35	
	Serum Protein	6.8 gm/dl	~6.0-8.3	
	Albumin (A)	4.8 gm/dl	~3.5-5.0	
	Globulin (G)	2.0↓ gm/dl	~2.3-3.5	
	Albumin/Globulin	2.4 gm/dl	~1.2-2.0	
	Alkaline Phosphate	57.0 IU/L	~37-106	
	Hemoglobin Test			
	Prothrombine (P.T)	14 sec	~12 sec	
15th Apr.2014	SGPT (Ifcc method)	35 IU/L	~40	Liver, Gall Bladder, Spleen, Pancreas, Kidney and Urinary Bladder normal

Results

Our result shows that *E. nivulia* has wonderful effects on Jaundice. Our interest to test the chemical constituents was generated only seeing the effect of the plant on the disease. The plant contains flavinoids, tetracyclic terpens, lectin, phenols, alkaloids, glycosides, saponins and tannins obtained by qualitative analysis using standard procedure. Besides it also has Nivulia-I, II and III which shows tremendous effects on jaundice (Badgujar 2011). Although the work was performed by the personal interest of the author so as to promote the plant for its valuable healing power and help its conservation for such disease as medicinal plant which is quite unknown to the people. Besides jaundice the plant is also reported to have tremendous effects in other diseases. More chemical and pharmacological studies of the species would further help to discover the exact mechanism of effect of this indigenous plant and pave the way for its large scale commercial cultivation for curative drug.

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