Physiochemical and Phytochemical Screening of Various Extracts of Myrica esculenta Linn. Himalayan Plant

Harish Shah[1*]
JBIT College of Pharmacy,
Dehradun (Utttrakhand)

Arif Naseer[2]
AVIPS,
Shobhit University,
Gangoh, Saharanpur (U.P.)

Abhishek Kumar Pandey[3]
Institute of Medical Sciences,
Deptt. of Pharmacology ,
BHU, Varanasi(U.P)

Prabhat Upadyay[3]
Institute of Medical Sciences,
Deptt. of Pharmacology ,
BHU, Varanasi(U.P)

***Abstract*:- *Myrica ensculenta* Linn. Sny. *Myrica nagi* belonging to family myricaceae, Commonly known as bey berry in English, Kaifal in Hindi, Katphal in Sanskrit, is an important medicinal tree distributed in India, Nepal, China, with a medium to large woody, evergreen, dioeious, subtropical tree varying from 3 to 15 m from place to place in sub-tropical Himalayas at altitudes of 900 to 2100 m. The plant is known to have varied medicinal properties and the stem bark of this plant has a variety of reported traditional uses for the treatment of asthma, fever, dyspnoea, throat and lung infections, chronic bronchitis and coughing. The different parts of *Myrica ensculenta* Linn. Such as leaves, stem, bark, seed & roots were collected from Pinder velly Distt. Chamoli Garhwal (Uttrakhand) Himalaya Region . The all plant parts powder was subjected to systematic Preliminary Phytochemical screening by successively Extracting them in five solvents viz- Pet.ether, chloroform, ethanol, methanol and water. Then testing for the presence of chemical constituents. The Extractive values (%)/ yield find out in Bark Metanol (23.06%) comperision to other part. Maximum % of alcohol soluble extractive: Myrica leaves (35.3%). Maximum % of Water soluble extractive: Myrica stem (24.8%). Maximum moisture content Myrica stem (9.93%). Maximum total ash: Myrica Bark (3.4%). Maximum acid insoluble ash: Myrica Bark(1.5%). The Flavnoids, tannis, Carbohydrate, resins and Phytosterols are presents mostly in all parts.**

Keyword: Myrica esculenta, Extactive value, Flavnoids, Moisture Content

I. INTRODUCTION

Myrica esculenta Sny.*Myrica nagi* is a medium to large woody, evergreen, dioeious, subtropical tree belonging to family myricaceae, Commonly known as box berry or bey berry in English, Kaifal in Hindi, Katphal in Sanskrit, Kaiphal in urdu is an important medicinal tree distributed in India, Nepal, China, Pakistan, and Malaya Islands. In India *Myrica esculenta* is found in Arunachala Pradesh, Meghalaya, Nagaland, Manipur, Mizoram. Khasia, Himachal Pradesh, Uttrakhand , Bengal. The tree yields a drupaceous fruit which is one of the tastiest wild fruits of the sub-Himalayan region. This fruit tree carries a lot of commercial importance and every year its fruits worth thousands of rupees are sold.These fruits are very much liked by all.

II. MATERIAL AND METHOD

A. Preparation of Extracts

The all plant parts of 500 g of powdered five parts of plants were subjected to systematic Preliminary Phytochemical screening by successively Extracting them by Successive solvent extraction method in five solvents viz- Pet.ether, chloroform, ethanol, methanol and water. Then testing for the presence of chemical constituents.

All the extracts were concentrated by using rotatary vacuum evaporator at low temperature. They were then weighed and Percentage of yield different extractive values was calculated with respect to air-dried substance. The colour and were consistency of the extracts noted and results are tabulated in **TABLE NO. 1**

Proximate analysis or Physicochemical studies were done for Moisture contents, Total ash (water soluble ash, acid-insoluble ash, alcohol soluble ash) Extractive value (water soluble extractive value, alcohol soluble extractive value) as per WHO guidelines according to the method described in Indian Pharmacopeia. **TABLE NO. 2**

Extractive values determination of water and alcohol soluble extractive value was used as means of evaluating the quality and purity of the constituents of which could not be readily estimated by other means. **TABLE NO. 3**

III. RESULT

Table1: Data showing successive extractive values (% yield) and nature of extracts of the *Myrica esculenta* Linn.

Plant parts	Solvents	Colour	Nature of the extracts	Extractive values (%)/ yield
Leave	Pet. Ether	Blackish green	Waxy	2.06
	Chloroform	Dark green	Semi solid	3.08
	Ethanol	Dark green	Sticky	0.486
	Methanol	Dark green	Semi solid	0.587
	Water	Dark green	Sticky	**13.27**
Stem	Pet. Ether	Brown	Sticky	1.07
	Chloroform	Brown	Sticky	8.38

Plant parts	Solvents	Colour	Nature of the extracts	Extractive values (%)/ yield
Seed	Pet. Ether	Brown	stiky	1.69
	Chloroform	Brown	sticky	**6.66**
	Ehanol	brown	Semi solid	4.02
	methanol	Brown	stiky	3.02
	Water	Brown	Sticky	6.06
Root	Pet. Ether	Brown	Sticky	2.03
	Chloroform	Brown	Semisolid	5.08
	Ehanol	Brown	sticky	5.07
	methanol	Dark brown	semisolid	**10.09**
	Water	Brown	sticky	6.09

TABLE 2: Data showing % Alcohol soluble extractive values and % Water soluble extractive values in *Myrica esculenta* Linn.Parts (Leave, Stem, Bark, Seed and Root).

Sample Identity	% of alcohol soluble extractive n=3	% of Water soluble extractive n=3
Leave	**35.3**	15.7
Stem	14.5	**24.8**
Bark	8.6	6.8
Seed	16.8	19.5
Root	8.4	12

Maximum % of alcohol soluble extractive: Myrica leaves (35.3%).
Maximum % of Water soluble extractive: Myrica stem (24.8%).

TABLE 3: Data showing values of moisture content, total ash, acid insoluble ash in *Myrica esculenta* Linn.Parts (Leave, Stem, Bark, Seed and Root).

Sample Identity	Moisture Content % n=3	Total Ash % n=3	Acid insoluble ash % n=3
Leave	8.72	2.83	0.52
Stem	**9.93**	2.47	0.02
Bark	5	**3.4**	**1.5**
Seed	6.32	2.4	1.3
Root	4.42	1.3	0.01

Maximum moisture content: Myrica stem (9.93%).
Maximum total ash: Myrica Bark (3.4%).
Maximum acid insoluble ash: Myrica Bark(1.5%).

Preliminary Phytochemical Analysis

Extracts obtained were subjected to various chemical tests to detect the chemical constituents present in them .Results are tabulated in **TABLE NO.4- 8**.

Table 4: Qualitative chemical tests of the extracts of *Myrica esculenta* Linn. (Leaf)

Chemical Constituent	Tests	Pet.ether	Chloroform	Ethanol	Methanol	Water
Alkaloids	1. Mayers test	-	+	+	+	-
	2.Dragendroff's test	-	+	+	+	-
	3. Wagners test	-	+	+	+	-
	4. Hagers test	-	+	+	+	-
Carbohydrates	1. Molisch's test	-	-	+	+	+
	2. Benedicts test	-	-	+	+	+
	3. Fehling's test	-	-	+	+	+
Glycosides	1.ModifiedBorntragers	-	-	+	+	+
	2. Legal test	-	-	+	+	+
Saponins	1. Foam test	+	-	-	-	-
	2. Froth test	+	-	-	-	-
Phytosterols	1. Salkowski test	-	-	+	+	+
	2.Libermann Burchard	-	-	+	+	+
	3. Tschugajew test	-	-	+	+	+
Fats & Oil	1. Stain test	+	-	-	-	-
Resins	1. Acetone water test	-	-	-	-	-
Phenols	1. Ferric Chloride test	-	-	+	+	+
Tannins	1. Gelatin test	-	-	+	+	+
Flavanoids	1. Alkaline reagent	-	-	+	+	+
	2. Lead acetate test	-	-	+	+	+
	3. Shinoda test	-	-	+	+	+
	4. Zn-Hcl reduction	-	-	+	+	+
Proteins	1.Xanthoproteic test	-	-	-	-	-
	2. Ninhydrin test	-	-	-	-	-
	3. Biuret test	-	-	-	-	-
Triterpenes	1. Copper acetate test	-	-	-	-	-

+ = Positive; - = negative

Table 5: Qualitative chemical tests of the extracts of *Myrica esculenta* Linn. (Stem)

Chemical Constituent	Tests	Pet.ether	Chloroform	Ethanol	Methanol	Water
Alkaloids	1. Mayers test	-	-	-	-	-
	2.Dragendroff's test	-	-	-	-	-
	3. Wagners test	-	-	-	-	-
	4. Hagers test	-	-	-	-	-
Carbohydrates	1. Molisch's test	-	-	-	-	-
	2. Benedicts test	-	-	-	-	-
	3. Fehling's test	-	-	-	-	-
Glycosides	1.ModifiedBorntragers	-	-	-	-	-
	2. Legal test	-	-	-	-	-
Saponins	1. Foam test	-	-	+	+	+
	2. Froth test	-	-	+	+	+
Phytosterols	1. Salkowski test	+	-	-	-	-
	2.Libermann Burchard	+	-	-	-	-
	3. Tschugajew test	-	-	-	-	-
Fats & Oil	1. Stain test	-	-	-	-	-
Resins	1. Acetone water test	-	-	+	+	+
Phenols	1. Ferric Chloride test	-	-	+	+	-
Tannins	1. Gelatin test					
Flavanoids	1. Alkaline reagent	-	-	-	+	-
	2. Lead acetate test	-	-	-	+	+
	3. Shinoda test	-	-	-	+	+
	4. Zn-Hcl reduction	-	-	-	+	+
Proteins	1.Xanthoproteic test	-	-	-	+	+
	2. Ninhydrin test	-	-	-	+	+
	3. Biuret test					
Triterpenes	1. Copper acetate test	-	-	-	-	-

+ = Positive; - = negative

Table 6: Qualitative chemical tests of the extracts of *Myrica esculenta* Linn. (Bark)

Chemical Constituent	Tests	Pet.ether	Chloroform	Ethanol	Methanol	Water
Alkaloids	1. Mayers test	-	-	-	-	-
	2.Dragendroff's test	-	-	-	-	-
	3. Wagners test	-	-	-	-	-
	4. Hagers test	-	-	-	-	-
Carbohydrates	1. Molisch's test	-	-	-	+	+
	2. Benedicts test	-	-	-	+	+
	3. Fehling's test	-	-	-	+	+
Glycosides	1.ModifiedBorntragers	-	-	-	-	-
	2. Legal test	-	-	-	-	-
Saponins	1. Foam test	-	+	-	-	-
	2. Froth test	-	+	-	-	+
Phytosterols	1. Salkowski test	-	-	+	+	+
	2.Libermann Burchard	-	-	+	+	-
	3. Tschugajew test	-	-	+	+	-
Fats & Oil	1. Stain test	-	+	-	-	-
Resins	1. Acetone water test	-	-	-	-	-
Phenols	1. Ferric Chloride test	-	-	-	-	-
Tannins	1. Gelatin test	-	-	-	-	-
Flavanoids	1. Alkaline reagent	-	-	+	+	+
	2. Lead acetate test	-	-	+	+	+
	3. Shinoda test	-	-	+	+	+
	4. Zn-Hcl reduction	-	-	+	+	+
Proteins	1.Xanthoproteic test	-	-	-	-	-
	2. Ninhydrin test	-	-	-	-	-
	3. Biuret test	-	-	-	-	-
Triterpenes	1. Copper acetate test	-	-	-	-	-

+ = Positive; - = negative

Table 7: Qualitative chemical tests of the extracts of *Myrica esculenta* Linn. (Seed)

Chemical Constituent	Tests	Pet.ether	Chloroform	Ethanol	Methanol	Water
Alkaloids	1. Mayers test	-	-	-	-	-
	2.Dragendroff's test	-	-	-	-	-
	3. Wagners test	-	-	-	-	-
	4. Hagers test	-	-	-	-	-
Carbohydrates	1. Molisch's test	-	-	+	+	-
	2. Benedicts test	-	-	+	+	-
	3. Fehling's test	-	-	+	+	-
Glycosides	1.ModifiedBorntragers	-	-	-	-	-
	2. Legal test	-	-	-	-	-
Saponins	1. Foam test	+	+	-	-	-
	2. Froth test	+	+	-	-	-
Phytosterols	1. Salkowski test	-	-	-	-	-
	2.Libermann Burchard	-	-	-	-	-
	3. Tschugajew test	-	-	-	-	-
Fats & Oil	1. Stain test	+	+	+	+	+
Resins	1. Acetone water test	-	-	-	-	
Phenols	1. Ferric Chloride test	-	-	-	-	
Tannins	1. Gelatin test	-	-	+	+	+
Flavanoids	1. Alkaline reagent	-	-	+	+	+
	2. Lead acetate test	-	-	+	+	+
	3. Shinoda test	-	-	+	+	+
	4. Zn-Hcl reduction	-	-	+	+	+
Proteins	1.Xanthoproteic test	-	-	-	-	-
	2. Ninhydrin test	-	-	-	-	-
	3. Biuret test	-	-	-	-	-
Triterpenes	1. Copper acetate test	-	-	-	-	-

Table 8: Qualitative chemical tests of the extracts of *Myrica esculanta* Linn. (Root)

Chemical Constituent	Tests	Pet.ether	Chloroform	Ethanol	Methanol	Water
Alkaloids	1. Mayers test	-	-	-	-	-
	2.Dragendroff's test	-	-	-	-	-
	3. Wagners test	-	-	-	-	-
	4. Hagers test	-	-	-	-	-
Carbohydrates	1. Molisch's test	-	-	-	-	-
	2. Benedicts test	-	-	-	-	-
	3. Fehling's test	-	-	-	-	-
Glycosides	1.ModifiedBorntragers	-	-	-	-	-
	2. Legal test	-	-	-	-	-
Saponins	1. Foam test	-	-	-	-	-
	2. Froth test	-	-	-	-	-
Phytosterols	1. Salkowski test	-	-	-	-	-
	2.Libermann Burchard	-	-	-	-	-
	3. Tschugajew test	-	-	-	-	-
Fats & Oil	1. Stain test	-	-	-	-	-
Resins	1. Acetone water test	-	-	-	-	-
Phenols	1. Ferric Chloride test	-	-	-	-	-
Tannins	1. Gelatin test	-	-	-	-	-
Flavanoids	1. Alkaline reagent	-	-	-	-	-
	2. Lead acetate test	-	-	-	-	-
	3. Shinoda test	-	-	-	-	-
	4. Zn-Hcl reduction	-	-	-	-	-
Proteins	1.Xanthoproteic test	-	-	-	-	-
	2. Ninhydrin test	-	-	-	-	-
	3. Biuret test	-	-	-	-	-
Triterpenes	1. Copper acetate test	-	-	-	-	-

+ = Positive; - = negative

IV. CONCLUSION:

The Conclusion of the research work of Such Parts as leaves, stem, bark, seed & roots were collected from Pinder velly Distt. Chamoli Garhwal (Uttrakhand) Himalaya Region . The testing for the presence of chemical constituents are Alkaloids, Flavanoids , Tannins, Phytosterols, Saponins are determine.The Extractive values (%)/ yield find out in Bark Metanol (23.06%) comperision to other part. Maximum % of alcohol soluble extractive: Myrica leaves (35.3%). Maximum % of Water soluble extractive: Myrica stem (24.8%). Maximum moisture content Myrica stem (9.93%). Maximum total ash: Myrica Bark (3.4%). Maximum acid insoluble ash: Myrica Bark(1.5%). The Flavnoids, tannis, Carbohydrate, resins and Phytosterols are presents mostly in all parts.

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