

## Research Article



## Studies on Pharmacognosical Characteristics and Phytochemical Analysis of *Manilkara hexandra* (Roxb.) Dubard

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### ABSTRACT

Medicinal Plants have been playing a significant role in the treatment of various ailments in India. The important traditional methods in our country are Ayurvedic, Homeopathy, Unnai and Siddha systems of medicine. *Manilkara hexandra* plant bark was used in Febrifuge and the latex used in giddiness, aphrodisiac, general debility. This review attempts to encompass the available literature of *Manilkara hexandra* with respect to traditional uses, Pharmacognosical characteristics and phytochemical analysis.

**Keywords:** Phytochemistry, Pharmacological, *Mimusops hexandra* and Leaf Extract.

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### INTRODUCTION

Medicinal Plants have been playing a significant role in the treatment of various ailments in India. The important traditional methods in our country are Ayurvedic, Homeopathy, Unnai and Siddha systems of Medicine. The world health organization has emphasized the utilization of indigenous system of Medicines based on the locally available raw materials, i.e. Medicinal Plants. Furthermore, approximate one third of all drugs are plant based and if bacteria and fungi also included, nearly 60% Of pharmaceuticals are of Plant origin. Our country is rich in large number of such plants that either be used directly or as the source of active principles in formulation of drugs curing dreaded diseases<sup>1</sup>.

India as a whole is the richest source of medicinal plants which are distributed in almost all parts of the country. The herb collectors and small traders collect the drugs for the manufactures of Ayurvedic and Unani medicines. But there is a shortage of these materials for maintaining the sustained supply to the plant based drug industries. It is also not proper under the present situation to be dependent only on natural resources to keep the wheel of the industries running all the time in view of the fast

depleting natural wealth. This call for the domestication and Cultivation of these plants as well as increment of the drug production with uniformly high potency. At the same time increased demand of Plant raw materials has led to over exploitation of wild plants resulting into serious hazard. This necessitates the urgent need of their systematic cultivation for constant supply to the use industries.

*Manilkara hexandra* is an Evergreen, small trees; latex milky. Leaves clustered at the ends of branches, coriaceous, shining, broadly ovate or oblong, entire, emarginate, base obtuse or acute, glabrous, dark-green above, paler below, secondary nerves 20-26 pairs, parallel, impressed above, raised below. Flowers white, axillary, solitary or in clusters. Calyx lobes 6, in 2 series of 3 each. Corolla lobes 18, in 3 series of 6 each, valvate. Stamens 6, alternate with the staminodes. Ovary 6-locular; ovule 1 or 2 per locules, axile. Berries ellipsoid, reddish-yellow when ripe; seed one, ovoid.

The plant bark was used in Febrifuge and the latex used in giddiness, aphrodisiac, general debility<sup>2</sup>.

### MATERIALS AND METHODS

*Manilkara hexandra* leaf was collected from Ponneri, Tamil Nadu, India in the form of dry sample.

Pharmacognostic Evaluations and Qualitative phytochemical analysis methods are followed from the published methods<sup>3</sup>.



## RESULTS

### Pharmacognosical characteristics

The characteristics of Pharmacognosical significance of the leaves sample (shade dried and powdered leaves sample) have been studied as a part of the evaluation of their antimicrobial. Conventional parameters such as fluorescence characteristics, ash values, exhaustive extractive values and qualitative phytochemical characteristics of the leaves sample have been determined.

### Fluorescence characteristics

**Table 1** present the fluorescence characteristics of the leaves sample. The sample was green in colour, while their solvent extracts fluorescence differently in normal and UV lights. The shade dried, powdered sample of *Manilkara hexandra* exhibited distinct fluorescence characteristics as could be seen in the data provided in the **Table 1**.

**Table 1:** Fluorescence characteristics of *Manilkara hexandra*\* in different solvents

S. No.	Solvent	Day light	UV light (254 nm)
1.	Hexane	Pale green	Green
2.	Benzene	Dark green	Green
3.	Chloroform	Yellowish Green	Yellowish green
4.	Ethyl acetate	Green	Dark Green
5.	Petroleum ether	Light Green	Green
6.	Acetone	Yellowish Green	Dark Green
7.	Ethanol	Pale Green	Green
8.	Water	Light Green	Yellowish green
9.	Acid (50% H <sub>2</sub> SO <sub>4</sub> )	Greenish Brown	Greenish Black
10.	Alcoholic KOH	Pale green	Green
11.	Aqueous KOH	Pale Yellowish green	Yellowish Green
12.	Methanol	Green	Dark Green
13.	Leaves powder as such	Pale brown	Pale brown

\*Shade dried powdered material

### Ash values and exhaustive extractive values

Ash values and exhaustive values for *Manilkara hexandra* are given in **Table 2**. In the *Manilkara hexandra*, of total ash value was 45.76 (%). Water-soluble ash content was (25.42 %). Exhaustive extractive values for the leaves sample given in **Table 2**.

**Table 2:** Ash values and exhaustive extractive values for the leaves sample

S. No.	Parameters	<i>Manilkara hexandra</i> (%)
1.	Total Ash	45.76
2.	Water Soluble Ash	25.42
3.	Alkalinity of water soluble ash (ml 0.1N HCl Required to neutralize 1.0g sample)	0.16 ml
4.	Acid Insoluble Ash	40.26
5.	Alcohol soluble Extractive	1.3
6.	Water soluble Extractive	0.22
7.	Exhaustive Extractive valve for n-Hexane	1.86
8.	Do for Chloroform	2.55
9.	Do for Methanol	3.26
10.	Petroleum ether	5.75
11.	Do for Chloroform Methanol (2:1) v/v	3.7

### Qualitative phytochemical Properties

Qualitative phytochemical properties of leaves sample are given in **Table 3**. Tests for Alkaloids, triterpenes, Steroids, Tannin, Saponin, coumarins, flavonoids, quinones, Phenols, Proteins, Glycosides gum, fat, oils and furan derivatives were negative indicating their absence. Nevertheless, the sample tested positive for alkaloids, Triterpenes, Tannin, steroids, flavonoidss, phenols, proteins glycosides.

**Table 3:** Qualitative Phytochemistry of the leaves sample

S. No.	Parameters	<i>Manilkara hexandra</i>
1.	Alkaloids	+
2.	Triterpenes	-
3.	Steroids	+
4.	Coumarin	-
5.	Tannin	+
6.	Saponin	-
7.	Flavonoids	+
8.	Quinones	-
9.	Phenols	+
10.	Gum	-
11.	Proteins	+
12.	Glycosides and Sugars	+
13.	Fats and Oils	-
14.	Indole / furan derivatives	-

(+) - Presence, (-)-Absence



**DISCUSSION**

Qualitative phytochemical screening and quantified total phenolic and alkaloidal contents of plant leaves of *Andrographis paniculata* revealed the presence of steroids, triterpenoids, glycosides, flavonoids, Quinones, saponins, tannins, alkaloids, phenols, Proteins, carbohydrates and oil. The methanolic extract shows higher amount of alkaloid and the ethanolic extracts has more phenolic compound and antioxidant activity was found to be more in methanolic extract<sup>4</sup>.

Phytochemical analyses of *Alangium salvifolium* leaf gall was performed<sup>5</sup>. Result of phytochemical analysis of this extract revealed the presence of tannins, steroids, saponin, alkaloids, phenols, proteins, glycosides and sugars.

The observations made in the present study have clearly showed the bioactive potential of the plant *Manilkara hexandra* in medicine. The leaves sample exhibited fluorescence characteristics, ash values and exhaustive extractive values. Leaves sample exhibited qualitative phytochemical properties.

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