

# PHARMACOGNOSTIC AND PRELIMINARY PHYTOCHEMICAL STUDY OF ROOTS OF *Boswellia Serrata* Roxb.

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## Abstract

Roots of plant *Boswellia serrata* are reported to possess medicinal values in traditional roots of medicine. The present investigation deals with preliminary phytochemical investigation of roots of *Boswellia serrata* which includes physicochemical parameters like ash values, extractive values, and moisture content. Phytochemical investigation of Pet. Ether, methanol, and water extract revealed the presence of glycosides, tannins, terpenoids, steroids, carbohydrates, alkaloids, saponins, and proteins. The main aim of the present investigation is to study the pharmacognostic characters and phytochemical standard of roots of *Boswellia serrata* which could be used to prepare a monograph for proper plant identification.

Keywords: - *Boswellia serrata*, Physicochemical, Phytochemical analysis.

## Introduction

*Boswellia serrata* is Indian frankincense tree. This tree is commonly found in Yemen, West Asia, Southern Arabia, South Africa and many parts of India. In India, it is found in Madhya Pradesh, Bihar, Orissa, Western Himalaya, Rajasthan, Gujarat and Maharashtra<sup>1, 2</sup>. Olibanum word (Indian frankincense tree) is derived from the Arabic word al-luban, means milk. This word also comes from the Arabic term for oil of Lebanon, as Lebanon was the place where the *Boswellia* resin was sold and traded with Europeans. Its English word comes from old French frankincense and it is used in perfumes and incenses<sup>3</sup>. A Sanskrit name "*Gajabhakshya*" sometimes used for *Boswellia* which suggest that elephants enjoy this herb as their diet<sup>4, 5</sup>. Salai guggal contains about 50% resin<sup>6</sup>. This tree is commonly found in Oman, Yemen, West Asia,

Southern Arabia, South Africa and many parts of India. In India, it is found in Madhya Pradesh, Bihar, Orissa, Western Himalaya, Rajasthan, Gujarat and Maharashtra<sup>7,8</sup>.

In Ethno medicines, the bark of this tree is good for dysentery, ulcers *Pitta*, asthma, and skin diseases<sup>9</sup>. Bark is also useful in diarrhea and piles<sup>10</sup>. The exudate of oleo-gum resin is very useful in urinary disorders, goiter, gout, piles, rheumatism and nervous diseases<sup>11, 12</sup>. It is useful in Alzheimer, arthritis, allergy, asthma, boil, bursitis, cancer, cough, Crohn's disease, skin, carbuncle, colitis, convulsion, dyspepsia, vaginosis, wound, wrinkle, edema, fever and inflammation<sup>13</sup>.

In Traditional medicines, *Boswellia serrata* gum resin is used as an antiseptic<sup>14</sup>., antifungal and antimicrobial<sup>15</sup>., anti-inflammatory<sup>15</sup>., arthritis<sup>16</sup>., anti obesity<sup>17</sup>., asthma<sup>18,19</sup>., cardiogenic<sup>20</sup> , anticonvulsant<sup>21</sup>. In Ayurveda, gum-resin of *Boswellia serrata* Roxb. has been used for treating arthritis from hundreds of years. It is also used in cosmetics by manufacturing of the supposed to be anti wrinkle agent Boswelox<sup>22</sup>.

## Experimental

**Material and Methods:** Green and fresh roots of *Boswellia serrata* Roxb were collected from Murbad forest in Thane district (MS); India. The plant was taxonomically identified and authenticated by Professor Dr. S. R. Kshirsagar, Taxonomist, Department of Botany, S.S.V.P.S's L.K. Dr. P.R. Ghogrey Science College, Dhule (MS). 1 kg powder of dried roots was subjected to Soxhlet extraction with various solvents<sup>23</sup>.

### Drying and pulverization

Roots of *Boswellia serrata* were shade-dried and pulverized and stored in an air-tight container for future use.

### Extraction of powdered Roots<sup>5</sup>

The powdered Roots were successively extracted by cold maceration process using organic solvents like methanol, Petroleum ether, and water. All the extracts were evaporated to dryness and stored for future use.

## PHARMACOGNOSTIC STUDIES

### Physicochemical Investigation

The moisture content, total ash, water-soluble ash, acid-insoluble ash, sulfated ash, alcohol and water-soluble extractive values were determined as part of its physicochemical parameters<sup>6,7</sup>.

## Phytochemical Investigation

Ethanol, n-hexane, and chloroform extracts were subjected to phytochemical analysis for the presence of various secondary phytoconstituents using standard chemical tests<sup>7, 8, 9</sup>.

## RESULT AND DISCUSSION

Physical appearance, color and odor of different extracts were recorded in (Table 1).

**Table 1: Shows characteristics of *Cassia Auriculata L.* extracts.**

Sr. No.	Extract	Physical Appearance	Color	Odor
1	Pet Ether	Semi-Solid mass	Dark Green	Aromatic
2	Methanol	Syrupy mass	Light Green	Pungent Aromatic
3	Water	Semi-Solid mass	Dark Green	Fishy

The physical constants evaluation of drugs is an important parameter in detecting adulteration or improper handling of drugs. The total ash value is important in the evaluation of purity of drugs i.e., the presence or absence of foreign inorganic matter. The ash values, extractive values, and moisture content of Roots were determined and the results are shown in (Table – 2).

**Table 2: Shows physicochemical parameters of *Boswellia serrata* Roots.**

Sr.No.	Parameters	Values (%) w/w
1	Loss on drying	
	Ash values:	3.17%
	Total ash	5.25%
2	Acid insoluble ash	3.01%
	Water soluble ash	1.00%
	Sulphated ash	0.45%

Extractive values:

3 Water soluble extractives 5.10%

Alcohol soluble extractives 2.94%

Phytochemical tests for the presence of secondary phytoconstituents showed the following results (Table 3); furthermore, the phytochemical screening of the extracts revealed the presence of various secondary phytoconstituents, and the results are summarized in Table 3.

**Table 3: Show preliminary phytochemical screening of *Boswellia serrata* Roots powder.**

Sr.No.	Phytoconstituents	Methanol	Pet Ether	Water
1	Alkaloids	+	+	+
2	Carbohydrates	+	+	+
3	Glycosides	+	+	+
4	Flavonoids	+	+	+
5	Phenol& Tannins	+	+	+
6	Steroids	—	—	—
7	Terpenoids	+	+	+
8	Saponins	—	—	—
9	Proteins	+	+	+
10	Amino Acids	+	+	+

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