

Proximate analysis of Leaves extract of the plant *Lawsonia Inermis*

L. Plant from Karanja Lad

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Abstract:

The proximate analysis of *Lawsonia inermis* L. leaves was carried out to find their nutritional and chemical composition. The study aimed to find out the moisture content, ash content, crude protein, crude fiber, fat, and carbohydrate levels using standard analytical procedures. The results obtained from this study indicated that *Lawsonia inermis* L. leaves possess a high moisture content, moderate solubility in organic solvents. The ash content shows the presence of essential minerals. These findings provide critical insights into the nutritional profile and bioactive capability of *Lawsonia inermis* L. leaves, which are widely recognized for their medicinal and cosmetic applications. The study underscores the significance of proximate analysis in understanding the nutritional value and potential health benefits of medicinal plants.

Key Words: Proximate Analysis, *Lawsonia inermis* L. plant.

Introduction:-

Lawsonia inermis L., commonly known as henna, is a well-known plant with a rich history of use in traditional medicine and cosmetics. The leaves of this plant are renowned for their dyeing properties and have been widely utilized for coloring hair and skin¹. Beyond its cosmetic applications, *Lawsonia inermis* L. has been recognized for its antimicrobial, anti-inflammatory, and antioxidant properties². Understanding the nutritional composition of *Lawsonia inermis* L. leaves is essential for exploring their potential in nutraceutical and pharmaceutical applications. In addition to its therapeutic benefits, *Lawsonia inermis* L. is also used in folk medicine for the treatment of various ailments, including skin diseases, wounds, and gastrointestinal disorders³.

The plant contains a wide range of bioactive compounds such as flavonoids, phenolic acids, alkaloids, and tannins, which contribute to its medicinal properties⁴. These phytochemicals possess antimicrobial, antioxidant, and anti-inflammatory properties, making *Lawsonia inermis* L. a valuable resource for the development of natural remedies.

Moreover, the nutritional value of *Lawsonia inermis* L. leaves plays a crucial role in their medicinal efficacy. Studies have shown that the leaves are rich in essential nutrients such as proteins, fibers, and carbohydrates, which support overall health and wellness⁵. Some studies have shown that *Lawsonia inermis* L. leaves contain bioactive compounds such as flavonoids, phenolic acids, tannins, saponins, and alkaloids⁶. These compounds exhibit antioxidant, antimicrobial, and anti-inflammatory activities, which contribute to the plant's medicinal potential⁷.

Proximate analysis allows researchers to quantify these nutrients and understand their role in promoting health benefits. The antimicrobial properties of *Lawsonia inermis* L. have been demonstrated against bacterial and fungal pathogens⁸. Furthermore, the anti-inflammatory effects of the plant have been attributed to the presence of flavonoids and phenolic compounds⁹. The plant is also known for its hepatoprotective, antidiabetic, and wound-healing properties¹⁰.

Proximate analysis is a fundamental analytical method used to determine the nutritional composition of plant materials, including moisture content, ash content, crude protein, crude fiber, fat, and carbohydrate levels¹¹. This analysis provides valuable information on the bioactive potential and dietary value of *Lawsonia inermis* L. leaves.

Methods and Materials:

Preparation of Sample:^{12, 13}

First the site for leaves collection was decided. The total leaves were collected from same region. The

collection of samples was done in between January 2022 to February 2022. The leaves of *Lawsonia inermis* L were separated by scissor and allowed for shed dried. They were dried at room conditions. The leaves were pulverized in grinding mill having a screen of 5 mm diameter hole to achieve particle size 40-50 mesh. This fine powder was treated as a sample powder for various analyses. All the Chemicals used are of A.R. grade.

OBESERVATIONS AND CALCULATIONS

Moisture content and ash content: ¹⁴

Silica crucible was taken and it was weighed and kept in oven till it showed constant weight. The leaves sample was analyzed for moisture and ash content by known method and the percentage of the moisture and ash of sample is calculated by applying the following formula

$$\% \text{ of Moisture and Ash} = \frac{\text{Weight loss of Samples}}{\text{Weight of Sample taken}} \times 100$$

Solubility in cold water , hot water, 1% NaOH, 1% HCl, ethanol, methanol, benzene, dioxane, ether: The cold water, hot water, 1%NaOH and 1%HCl solubility of leaves sample was analyzed by known method¹² and percentage of solubility of each sample is calculated by applying the following formula

$$\% \text{ of solubility} = \frac{\text{Weight loss of Samples}}{\text{Weight of Sample taken}} \times 100$$

The results obtained are depicted in **Table No 1**

Result and Discussion:

The results for the Proximate analysis of leaves of *Lawsonia inermis L* plant was shown in Table no.1

Sr. No.	Parameter	Percentage
1.	Moisture content	5.92
2.	Ash content	9.90
3.	Cold water solubility	45
4.	Hot water Solubility	48
5.	1% NaOH solubility	31
6.	1% HCl solubility	59
7.	Ethanol	65
8.	Methanol	45
9.	Benzene	35
10.	Dioxane	25
11.	Ether	55

Conclusion:

The findings of this investigation are positive, according to a review of the literature on herbal medications.

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