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"Pharmacognostic Evaluation and Formulation Analysis of *Boswellia Serrata* Oleo Gum Resin Tablet"

Arshiya Zulfen Mohd Fahim[1*], Dr. Disha[2], Dr. Shahzad Ahmed[3]

1. Research scholar in JJT University, Rajasthan-333010
2. Associate professor in JJT University, Rajasthan-333010
3. Professor and Principal, JMCT Institute of Pharmacy Wadala Road Dist: Nashik (M.S). 422 006

Corresponding author: Arshiya Zulfen Mohd Fahim[1*]
Research scholar in JJT University,Rajasthan-333010
Email: arshiyazulfeen123@gmail.com

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Abstract

This study presents a comprehensive pharmacognostic evaluation and formulation analysis of *Boswellia Serrata* Oleo Gum Resin tablets. The materials and methods section details the formulation codes and ratios used for preparing *Boswellia Serrata* Oleo Gum Resin tablets, along with macroscopic and microscopic characterizations of the crude gum-resin. Pharmacognostical evaluations include organoleptic characters, powder microscopy findings, and chemical tests indicating solubility and physico-chemical parameters such as loss on drying and total ash value. In-vitro antioxidant activities were assessed through DPPH and ABTS radical scavenging assays, revealing notable antioxidant capacities. The evaluation of tablet formulations encompassed physical parameters and kinetic studies, demonstrating variations in hardness, friability, and drug release kinetics across different formulations. Accelerated stability studies indicated satisfactory stability profiles for most formulations over varying time intervals. Overall, this study provides a detailed insight into the pharmacognostic characteristics and formulation attributes of *Boswellia Serrata* Oleo Gum Resin tablets, highlighting their potential as antioxidant-rich herbal formulations.

Keywords: *Boswellia Serrata* Oleo Gum Resin, pharmacognostic evaluation, formulation analysis, tablet development, antioxidant activity, physico-chemical parameters, drug release kinetics, and stability studies.

Introduction

Boswellia Serrata, a species native to India and other parts of Asia, has been traditionally valued for its therapeutic properties, particularly in Ayurvedic and traditional medicine systems. The resinous extract derived from *Boswellia Serrata*, known as *Boswellia Serrata* Oleo Gum Resin has

garnered attention for its potential health benefits, especially in managing inflammatory conditions and oxidative stress-related disorders. [1,2]

The pharmacognostic evaluation of *Boswellia Serrata* Oleo Gum Resin involves a comprehensive assessment of its botanical characteristics, including macroscopic and microscopic features. Macroscopically, *Boswellia Serrata* is identified by its resinous exudate upon tapping, typically appearing as irregular droplets or tear-shaped lumps with a characteristic balsamic odor. Microscopic examination reveals the presence of trichomes, sclereides, and oil globules within the resin, further defining its structural composition.[3,4]

Chemical characterization of *Boswellia Serrata* Oleo Gum Resin highlights its complex phytochemical profile, primarily composed of boswellic acids such as β-boswellic acid, acetyl-β-boswellic acid, and 11-keto-β-boswellic acid. These bioactive compounds contribute to *Boswellia Serrata* Oleo Gum Resin pharmacological properties, including anti-inflammatory, antioxidant, and immunomodulatory effects. Pharmacognostical studies also assess the resin's organoleptic properties, powder characteristics, and chemical behaviors such as solubility in water, alcohol, and acids.[5,6]

Formulation analysis of *Boswellia Serrata* Oleo Gum Resin involves the development of pharmaceutical dosage forms, notably tablets, aimed at optimizing its therapeutic efficacy and patient compliance. Formulation codes varying in *Boswellia Serrata* Oleo Gum Resin ratios and excipient compositions are studied for their physico-chemical properties, including hardness, friability, thickness, and drug release kinetics. In vitro antioxidant assays, such as DPPH and ABTS radical scavenging tests, assess *Boswellia Serrata* Oleo Gum Resin ability to neutralize free radicals and enhance cellular antioxidant defenses.[7,8]

Stability studies provide critical insights into the long-term viability and shelf-life of *Boswellia Serrata* Oleo Gum Resin tablets under accelerated conditions, ensuring their efficacy and safety over time. These studies evaluate parameters like hardness, friability, and chemical composition at different time intervals to ascertain formulation robustness and product integrity.[9,10]

By synthesizing these findings, this review aims to elucidate the comprehensive pharmacognostic evaluation and formulation analysis of *Boswellia Serrata* Oleo Gum Resin tablets. Understanding these aspects not only enhances our knowledge of *Boswellia Serrata* Oleo Gum Resin's therapeutic

potential but also underscores its relevance in modern pharmaceutical and nutraceutical applications, advocating for its integration into evidence-based therapeutic strategies for inflammatory and oxidative stress-related disorders.[11,12]

MATERIALS AND METHOD

Materials and Methods

1. Macroscopical Characterization

Macroscopical examination was conducted to identify the key morphological features of *Boswellia Serrata*. Various parts of the plant were observed, including the branch with leaves (Fig 1), trunk with exfoliating bark (Fig 2), and the exudation of resin following tapping (Fig 3). Additionally, the crude gum-resin was collected (Fig 4) and analyzed for its physical characteristics.[13]

2. Pharmacognostical Evaluation

Organoleptic Characters

The organoleptic properties of the Shallaki oleo-gum-resin were characterized based on its consistency, nature of the powder, color, taste, and odor. These observations are summarized in Table 2. The oleo-gum-resin was found to have a coarse, hygroscopic powder form, with a white-yellow color. Its taste was sub-acrid, bitter, pungent, and sweet, while the odor was sweet, balsamic, and aromatic.[14]

Powder Microscopy

Microscopical analysis was conducted on the powdered oleo-gum-resin of *Boswellia Serrata*. The powder was examined under a microscope to identify specific characteristics such as trichomes (Fig 5), sclereides (Fig 6), oil globules (Fig 8), and other distinct features (Table 3). The results indicated that the powder appeared as irregularly shaped, translucent, brittle droplets or tear-shaped lumps. The presence of trichomes, sclereides, and yellow-colored oil globules was confirmed.[15]

3. Chemical Tests

The chemical properties of the Shallaki oleo-gum-resin were evaluated using various solubility tests (Table 4). The resin demonstrated solubility in water and alcohol, insolubility in acids, and solubility in glycerin and concentrated HCl, which produced a reddish or brown color.[16]

4. Physico-Chemical Parameters

The physico-chemical properties of the oleo-gum-resin were assessed, including loss on drying, total ash value, water-soluble extract, volatile oil content, and pH value (Table 5). The results indicated a loss on drying of 20.74% w/w, a total ash value of 6.00% w/w, and a water-soluble extract content of 24.20% w/w. The volatile oil content was measured at 2.40% w/w, and the pH was determined to be 6.09.[17]

5. In-Vitro Antioxidant Activity

DPPH Radical Scavenging Activity

The antioxidant activity of ***Boswellia Serrata*** oleo-gum-resin was evaluated using the DPPH radical scavenging assay (Table 6, Fig 9). The sample demonstrated a dose-dependent increase in radical scavenging activity, with 50% scavenging observed at a concentration of 1.0 mg/mL. The results were compared with ascorbic acid, a standard antioxidant.[18]

ABTS Radical Scavenging Activity

The ABTS radical scavenging activity was also assessed (Table 7, Fig 10). The oleo-gum-resin exhibited significant antioxidant activity, with 60% scavenging at 1.0 mg/mL. The activity was again compared with ascorbic acid.[19]

Total Antioxidant Capacity

The total antioxidant capacity of the oleo-gum-resin was determined using the phosphomolybdenum method, expressed in mg ascorbic acid equivalents per gram (mg AAE/g) of the sample (Table 8, Fig 11). The results showed that the total antioxidant capacity increased with concentration, reaching 35 ± 2.50 mg AAE/g at 1.0 mg/mL.[20]

6. Preparation of tablet

The *Boswellia Serrata* Oleo Gum Resin tablets were formulated using a direct compression method, where the selected ratios of *Boswellia Serrata* Oleo Gum Resin extract, microcrystalline

cellulose (MCC), and calcium carbonate (CaCO3) were mixed thoroughly to achieve uniform distribution of the components. For each formulation (F1 to F9), the *Boswellia Serrata* Oleo Gum Resin extract was blended with the required percentage of MCC, which served as a binder, and CaCO3, which acted as a diluent and disintegrant. The blends were prepared by geometric dilution to ensure homogeneity. After achieving a uniform mix, the powder blend was directly compressed into tablets using a single-punch tablet compression machine, with a total tablet weight standardized to 75 mg, 100 mg, or 125 mg, depending on the formulation. The tablets were then subjected to evaluation for various parameters, including hardness, friability, and disintegration time, to assess their quality and performance.[21]

Table 1: Formulation code of the prepared *Boswellia Serrata* Oleo Gum Resin tablets

Code	*BOSWELLIA SERRATA* OLEO GUM RESIN ratio	MCC (%)	CaCO3 (%)	Total (mg)
F1	2	66	33	75
F2	3	75	25	75
F3	4	80	20	75
F4	2	66	33	100
F5	3	75	25	100
F6	4	80	20	100
F7	2	66	33	125
F8	3	75	25	125
F9	4	80	20	125

7. Evaluation of Formulated *Boswellia Serrata* Oleo Gum Resin Tablets

8. Physical Parameters

The *Boswellia Serrata* Oleo Gum Resin tablets were evaluated for various physical parameters, including thickness, hardness, diameter, friability, assay, and tensile strength (Table 9). Each formulation (F1 to F9) was tested, and the results indicated that the physical characteristics of the tablets varied depending on the formulation components and ratios used.[22]

9. Kinetic Studies

The drug release kinetics of the *Boswellia Serrata* Oleo Gum Resin tablets were studied using several mathematical models, including Zero order, First order, Higuchi, Korsmeyer-Peppas, and Hixson-Crowell models (Table 10). The release data were fitted to these models to determine the mechanism of drug release, with the results suggesting that the drug release followed specific kinetic patterns depending on the formulation.[23]

10. Accelerated Stability Studies of *Boswellia Serrata* Oleo Gum Resin Tablets

The accelerated stability studies for *Boswellia Serrata* Oleo Gum Resin tablets were conducted according to ICH guidelines by storing the formulations (F1 to F9) at 40°C ± 2°C and 75% ± 5% relative humidity in a stability chamber. The tablets were placed in tightly sealed containers and monitored at specific time intervals (0, 1, 3, and 6 months). At each time point, the tablets were evaluated for physical parameters such as appearance, thickness, hardness, friability, and assay, along with chemical stability indicators including drug content and any degradation products. Additionally, in-vitro dissolution studies were conducted to assess any changes in the release profile over time. The data collected from these analyses were used to predict the shelf life and ensure the stability of the *Boswellia Serrata* Oleo Gum Resin tablets under accelerated conditions.[24]

RESULTS AND DISCUSSION

Macroscopical characterization

Fig 1: Macroscopical Evaluation of *Boswellia Serrata* Oleo Gum Resin

Microscopical characterization

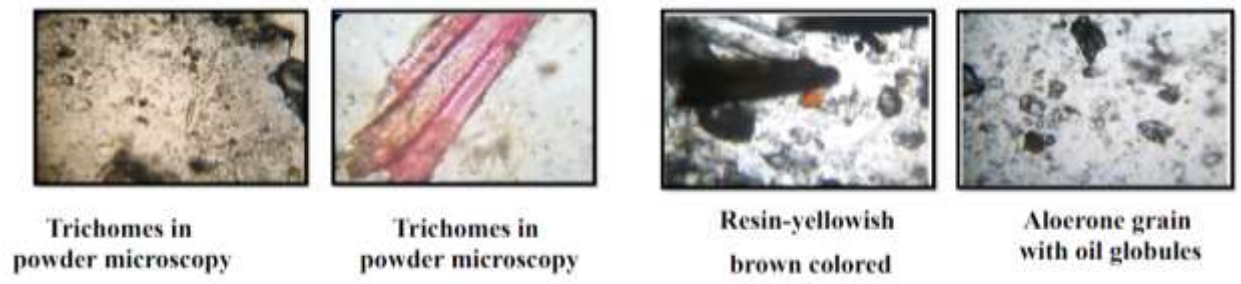

Fig 2: Microscopical characterization of *Boswellia Serrata* Oleo Gum Resin

Pharmacognostical Evaluation

Organoleptic Characters:

Table 2: Organoleptic Characters

Shallaki	**Oleo-gum-resin**
Consistency	Coarse powder
Nature of Powder	Hygroscopic
Color	White yellow
Taste	Sub-acrid, bitter, pungent, sweet
Odor	Sweet, balsamic, aromatic

Powder Microscopy

Table 3: Results of Powder Microscopy

S. No	**Parameters**	**Description**
1	Appearance	Irregular shape, translucent, brittle irregular droplets or tear-shaped lumps or globes, dusty
2	Trichome	Present
3	Sclereides	Present

4	Oil Globules	Present - yellow colored

Chemical tests:

Table 4: Results of the chemical tests:

S. No	Parameters	Description
1	Water solubility	Soluble
2	Alcohol solubility	Soluble
3	Acid solubility	Insoluble
4	With Glycerin & Concentrated HCl	Soluble & gives reddish or brown color

Physico-chemical parameters

Table 5: Physico-chemical parameters results

Sr No	Test	Result
1	Loss on drying	20.74 % w/w
2	Total Ash Value	06.00 % w/w
3	Water soluble Extract	24.20 % w/w
4	Volatile Oil	02.40 % w/w
5	pH value	06.09

IN-VITRO ANTI OXIDANT ACTIVITY

DPPH Radical Scavenging (%)

Table 6: DPPH Radical Scavenging (%)

Sample	Concentration (mg/mL)	DPPH Radical Scavenging (%)
	0.1	30 ± 2.00

Boswellia Serrata Oleo Gum Resin	0.5	40 ± 2.50
	1.0	50 ± 3.00
Ascorbic Acid	0.1	42 ± 2.93
	0.5	63 ± 1.76
	1.0	76 ± 1.86

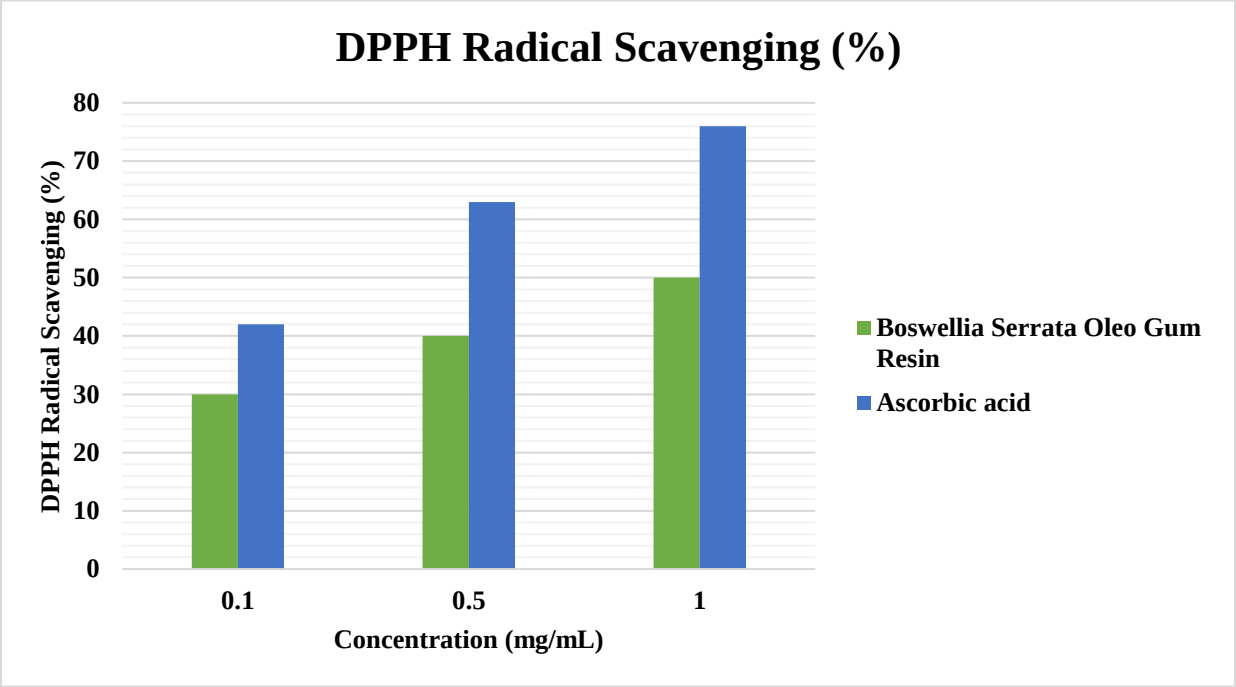

Fig 3: DPPH Radical Scavenging (%)

ABTS Radical Scavenging (%)

Table 7: ABTS Radical Scavenging (%)

Sample	Concentration (mg/mL)	ABTS Radical Scavenging (%)
Boswellia Serrata Oleo Gum Resin	0.1	40 ± 2.50
	0.5	50 ± 3.00
	1.0	60 ± 3.50

Ascorbic Acid	0.1	56 ± 3.14
	0.5	76 ± 1.02
	1.0	89 ± 2.83

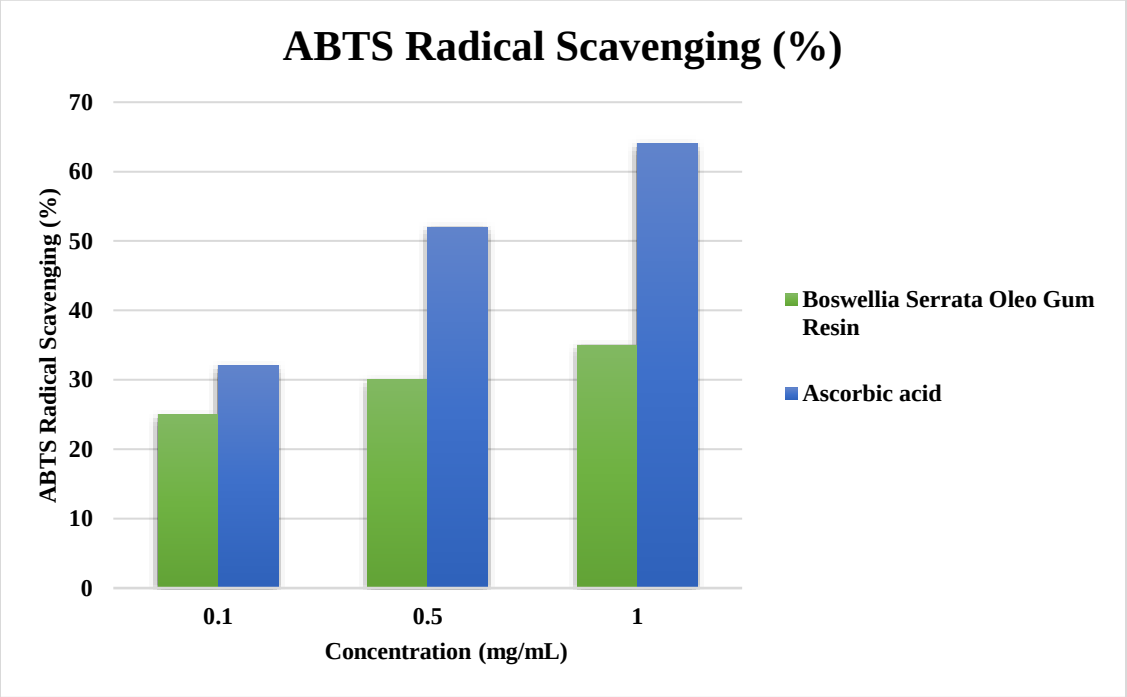

Fig 4: ABTS Radical Scavenging (%)

Total Antioxidant Capacity (mg AAE/g)

Table 8 : Total Antioxidant Capacity (mg AAE/g)

Sample	Concentration (mg/mL)	Total Antioxidant Capacity (mg AAE/g)
Boswellia Serrata Oleo Gum Resin	0.1	25 ± 2.00
	0.5	30 ± 2.00
	1.0	35 ± 2.50
Ascorbic Acid	0.1	32.5 ± 1.18
	0.5	52.6 ± 2.07

	1.0	64.4 ± 1.06

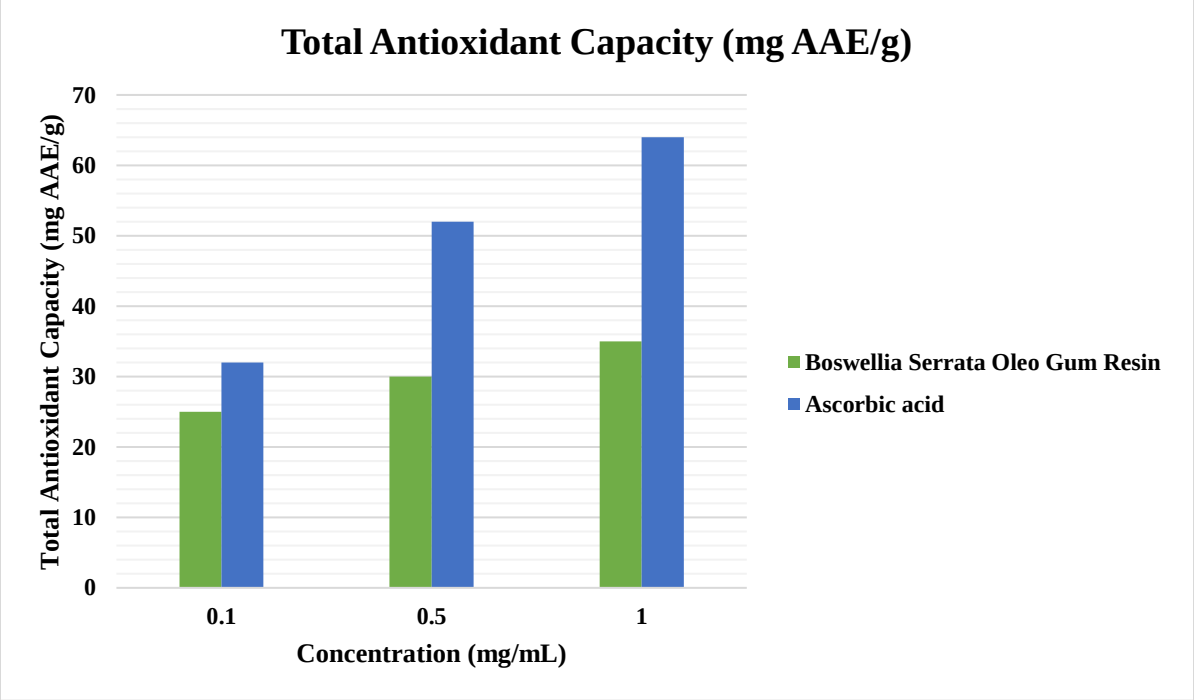

Fig 5: Total Antioxidant Capacity (mg AAE/g)

EVALUATION OF TABLET

Table 9: Physical parameters of the formulated *Boswellia Serrata* Oleo Gum Resin tablets

Batch No.	**Thickness (mm)**	**Hardness (kg/cm²)**	**Diameter (mm)**	**Friability (%)**	**Assay (%)**	**Tensile Strength (MN/m²)**
F1	4.80 ± 0.02	2.50 ± 0.90	8.40 ± 0.02	1.19 ± 0.03	97.5 ± 0.03	0.396 ± 0.025
F2	4.72 ± 0.04	2.25 ± 0.41	8.44 ± 0.01	1.61 ± 0.01	99.30 ± 0.06	0.347 ± 0.016
F3	4.74 ± 0.03	1.25 ± 0.54	8.42 ± 0.02	1.84 ± 0.01	98.4 ± 0.06	0.199 ± 0.032

F4	4.75 ± 0.02	4.10 ± 0.57	8.45 ± 0.03	0.45 ± 0.02	97.9 ± 0.03	0.631 ± 0.041
F5	4.78 ± 0.01	2.00 ± 0.21	8.44 ± 0.01	0.72 ± 0.03	98.6 ± 0.02	0.319 ± 0.027
F6	4.74 ± 0.01	1.85 ± 0.12	8.41 ± 0.05	1.64 ± 0.02	98.3 ± 0.02	0.280 ± 0.043
F7	4.72 ± 0.02	6.10 ± 0.48	8.42 ± 0.02	0.41 ± 0.01	99.2 ± 0.05	0.961 ± 0.018
F8	4.80 ± 0.05	5.50 ± 0.64	8.45 ± 0.02	0.77 ± 0.02	102.4 ± 0.03	0.863 ± 0.039
F9	4.76 ± 0.03	2.75 ± 0.59	8.40 ± 0.03	1.14 ± 0.05	98.5 ± 0.02	0.438 ± 0.025

Kinetic studies on *Boswellia Serrata* Oleo Gum Resin tablets

Table 10: Kinetic studies on *Boswellia Serrata* Oleo Gum Resin tablets

Batch No.	**Zero order (r^2)**	**Zero order (k_0 (h^{-1}))**	**First order (r^2)**	**First order (k_1 (h^{-1}))**	**Higuchi (r^2)**	**Higuchi (kH ($h^{1/2}$))**	**Korsmeyer-Peppas (r^2)**	**Korsmeyer-Peppas (n)**	**Hixson-Crowell (r^2)**	**Hixson-Crowell (kHC ($h^{-1/3}$))**
F1	0.8646	0.2732	0.9457	-0.0049	0.9742	6.1126	0.9678	1.0582	0.3340	0.9909
F2	0.8541	0.2782	0.9467	-0.0057	0.9691	6.2484	0.9686	1.0712	0.3182	0.9945
F3	0.8434	0.2833	0.9692	-0.0059	0.9632	6.3841	0.9693	1.1292	0.3029	0.9771
F4	0.8551	0.2755	0.9647	-0.0059	0.9634	6.1838	0.9609	0.9632	0.0146	0.9894

F5	0.8509	0.2730	0.9839	-0.0051	0.9674	6.1364	0.9781	0.9709	0.0331	0.9855
F6	0.8604	0.2743	0.9665	-0.0053	0.9724	6.1482	0.9652	1.0387	0.1574	0.9939
F7	0.8621	0.2676	0.9773	-0.0053	0.9731	5.9937	0.9603	0.8656	0.1603	0.9920
F8	0.8685	0.2686	0.9880	-0.0046	0.9756	6.0010	0.9657	0.9187	0.0427	0.9900
F9	0.8629	0.2744	0.9786	-0.0052	0.9731	6.1434	0.9684	0.9611	0.0275	0.9934

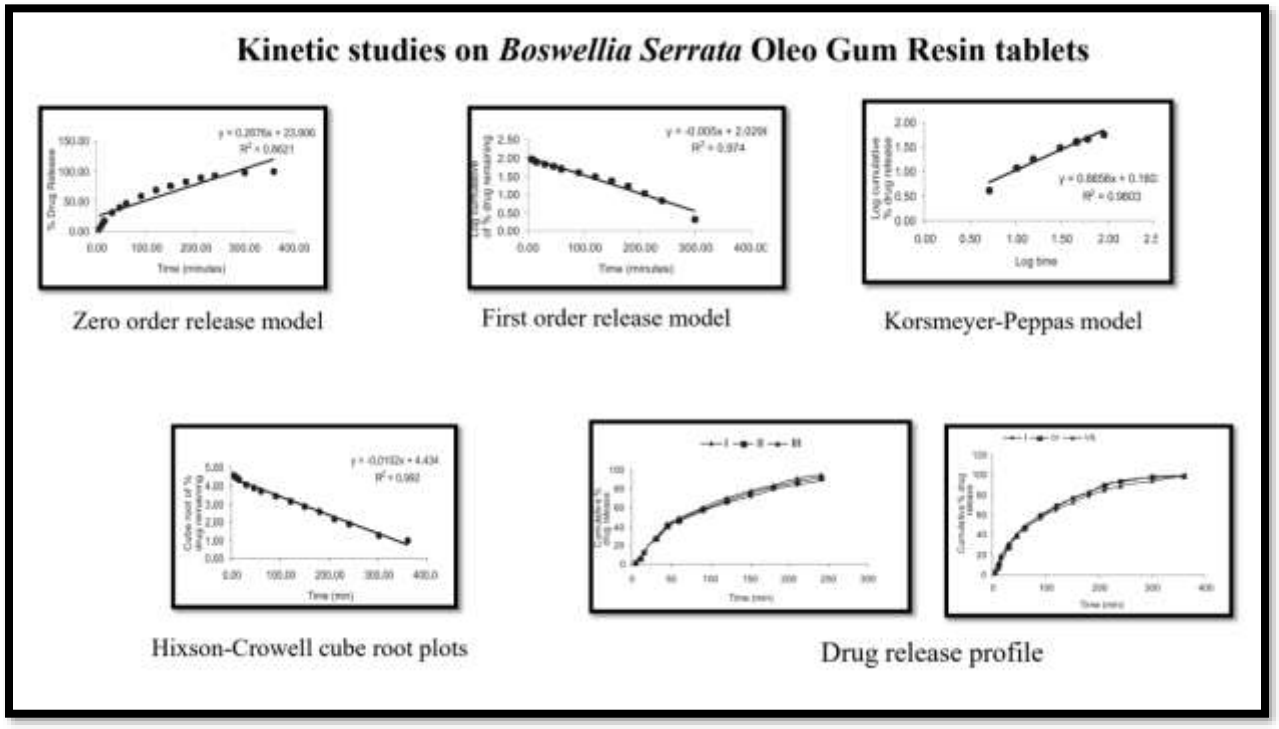

Fig 6: Kinetic studies on *Boswellia Serrata* Oleo Gum Resin tablets

Accelerated stability studies of *BOSWELLIA SERRATA* OLEO GUM RESIN tablets

Table 11 Results of accelerated stability studies of *Boswellia Serrata* Oleo Gum Resin tablets.

Batch No.	**Hardness (Kg/cm²)**				**Friability (% w/w)**				**Assay (%)**			
	0 D	6 W	3 M	6 M	0 D	6 W	3 M	6 M	0 D	6 W	3 M	6 M
F1	2.50 ± 0.90	2.45 ± 0.50	2.45 ± 0.70	2.50 ± 0.80	1.19 ± 0.03	1.23 ± 0.02	1.22 ± 0.04	1.26 ± 0.03	97.5 ± 0.03	98.1 ± 0.07	97.7 ± 0.05	96.7 ± 0.08
F2	2.25 ± 0.41	2.25 ± 0.40	2.20 ± 0.90	2.20 ± 0.80	1.61 ± 0.01	1.63 ± 0.05	1.61 ± 0.02	1.57 ± 0.03	99.3 ± 0.06	99.1 ± 0.08	99.7 ± 0.07	98.8 ± 0.09
F3	1.25 ± 0.54	1.25 ± 0.80	1.25 ± 0.70	1.30 ± 0.80	1.84 ± 0.01	1.89 ± 0.06	1.82 ± 0.03	1.85 ± 0.01	98.4 ± 0.06	98.6 ± 0.10	98.8 ± 0.07	99.1 ± 0.09
F4	4.10 ± 0.57	4.00 ± 0.40	4.10 ± 0.40	4.10 ± 0.60	0.45 ± 0.02	0.45 ± 0.01	0.45 ± 0.06	0.48 ± 0.04	97.9 ± 0.03	97.6 ± 0.05	97.3 ± 0.11	98.4 ± 0.08
F5	2.00 ± 0.21	2.00 ± 0.20	2.05 ± 0.40	2.05 ± 0.30	0.72 ± 0.03	0.78 ± 0.05	0.73 ± 0.04	0.74 ± 0.05	98.6 ± 0.02	98.6 ± 0.08	98.4 ± 0.04	98.5 ± 0.02
F6	1.85 ± 0.12	2.00 ± 0.30	1.90 ± 0.50	2.00 ± 0.20	1.64 ± 0.02	1.67 ± 0.01	1.69 ± 0.03	1.58 ± 0.07	98.3 ± 0.02	98.7 ± 0.09	98.3 ± 0.10	98.0 ± 0.08
F7	6.10 ± 0.48	6.20 ± 0.50	6.20 ± 0.40	6.20 ± 0.40	0.41 ± 0.01	0.43 ± 0.03	0.43 ± 0.02	0.40 ± 0.02	99.2 ± 0.05	99.8 ± 0.13	99.3 ± 0.10	98.5 ± 0.06
F8	5.50 ± 0.64	5.55 ± 0.60	5.55 ± 0.50	5.60 ± 0.70	0.77 ± 0.02	0.78 ± 0.05	0.78 ± 0.04	0.77 ± 0.05	102.4 ± 0.03	102.2 ± 0.07	101.8 ± 0.04	100.8 ± 0.05
F9	2.75 ± 0.59	2.65 ± 0.40	2.70 ± 0.60	2.70 ± 0.50	1.14 ± 0.05	1.16 ± 0.04	1.11 ± 0.06	1.12 ± 0.05	98.5 ± 0.02	98.2 ± 0.09	98.4 ± 0.05	99.1 ± 0.08

Discussion

The study on *Boswellia Serrata* oleo-gum-resin, commonly known as Shallaki, provides an extensive analysis of its various pharmacognostical, chemical, and therapeutic properties, confirming its significance in traditional and modern medicine. This detailed investigation encompasses macroscopical examination, pharmacognostical evaluation, physico-chemical characterization, in-vitro antioxidant activity, formulation of tablets, and stability studies, each shedding light on the plant's potential for therapeutic applications.

The macroscopical examination of *Boswellia Serrata* involved a close observation of the plant's external features, which are essential for its identification and quality control. The study provided detailed visual documentation of the plant, highlighting key characteristics that are intrinsic to its

identification. For instance, the observation of the branch with leaves, the exfoliating bark of the trunk, and the process of resin exudation following tapping are all critical in recognizing the plant. The crude gum-resin obtained from the plant also displayed a distinct appearance that is characteristic of *Boswellia Serrata*, allowing for easy identification of the material in its raw form. Such macroscopical characteristics serve as a foundation for the authentication of the plant, which is crucial in ensuring the quality and efficacy of the final product.

The pharmacognostical evaluation of Shallaki included organoleptic and microscopical analyses. Organoleptic evaluation is a traditional method of identifying and assessing herbal materials based on sensory attributes like color, taste, texture, and odor. The study revealed that the Shallaki powder is coarse, hygroscopic, and exhibits a white-yellow color. The taste is complex, with sub-acrid, bitter, pungent, and sweet notes, and it emits a sweet, balsamic, and aromatic odor. These sensory characteristics not only help in the identification of the plant material but also provide insights into its potential therapeutic properties, as organoleptic features often correlate with bioactive compounds present in the plant.

Microscopical analysis further revealed key histological features of the Shallaki powder, such as the presence of trichomes and sclereides, as well as yellow-colored resin particles and aleurone grains with oil globules. These microscopic features are essential for the quality control of herbal materials, ensuring that the correct species is used in formulations and that it is free from adulterants. The presence of these specific anatomical markers confirmed the authenticity of the Shallaki sample.Chemical tests provided valuable information on the solubility of *Boswellia Serrata* oleo-gum-resin in various solvents, which is critical for its application in different formulations. The study found that the resin is soluble in water, alcohol, and glycerin with concentrated HCl, while it remained insoluble in acid. These solubility profiles are consistent with the known properties of oleo-gum-resin and help in determining its suitability for various pharmaceutical applications. The physico-chemical parameters evaluated in the study, such as loss on drying, total ash value, water-soluble extract, volatile oil content, and pH, are standard measures used to assess the quality and stability of herbal materials. The results indicated that the Shallaki sample had a loss on drying of 20.74% w/w, a total ash value of 6.00% w/w, a water-soluble extract of 24.20% w/w, a volatile oil content of 2.40% w/w, and a pH of 6.09. These values are within the acceptable range, confirming the stability and quality of the sample. The study also focused on

evaluating the antioxidant potential of *Boswellia Serrata* using in-vitro assays such as DPPH and ABTS radical scavenging activities. The results indicated moderate antioxidant activity, with DPPH scavenging percentages ranging from 30% at 0.1 mg/mL to 50% at 1.0 mg/mL, and ABTS scavenging percentages ranging from 40% to 60%. These findings are significant as they demonstrate the potential of *Boswellia Serrata* in neutralizing free radicals, which are implicated in various diseases and aging processes. The total antioxidant capacity measured in ascorbic acid equivalents also supported the resin's antioxidant potential, albeit lower than that of ascorbic acid itself. These findings underscore the therapeutic potential of *Boswellia Serrata* in managing oxidative stress-related conditions. The formulated *Boswellia Serrata* tablets were evaluated for their physical properties, drug release kinetics, and stability. The tablets exhibited consistent physical parameters such as thickness, hardness, and friability, indicating robustness in their formulation. The drug release kinetics predominantly followed a first-order model, with the Korsmeyer-Peppas model suggesting diffusion-controlled release mechanisms. Accelerated stability studies further confirmed the tablets' ability to retain their physical integrity and chemical stability over a six-month period, validating their shelf-life and efficacy under storage conditions.

Conclusion

This study comprehensively evaluated *Boswellia Serrata* Oleo Gum Resin tablets through pharmacognostic analysis, formulation development, and extensive characterization. The findings underscored the resin's organoleptic properties, microscopic features, and chemical behaviors, affirming its suitability for tablet formulation. In vitro antioxidant assays revealed significant radical scavenging capabilities, suggesting potential therapeutic benefits. Physical parameters and kinetic studies demonstrated formulation-specific variations in tablet properties and drug release profiles, crucial for optimizing therapeutic efficacy. Accelerated stability assessments indicated favorable long-term stability, supporting the feasibility of *Boswellia Serrata* Oleo Gum Resin tablets as antioxidant-rich herbal formulations. Overall, this research contributes valuable insights into the pharmacognostic attributes and formulation dynamics of *Boswellia Serrata* Oleo Gum Resin, paving the way for its potential application in pharmaceutical and nutraceutical industries.

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