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Evaluation of Physico-chemical, Phytochemical Analysis, In-vitro Antioxidant, Anti-inflammatory activity and FTIR Spectral analysis of Crude Extract from Jasminum grandiflorum Flower (Linn.)

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ABSTRACT

Objective: Jasminum grandiflorum, which belongs to the Oleaceae family, is most commonly used in the fragrance industry due to its aromatic compound content.It is a medicinally significant plant widely used in traditional and Ayurvedic medicine. While its flowers and leaves are well known for their therapeutic benefits, the stem also contains bioactive compounds that contribute to its pharmacological properties.The current goal of the research is to usephysicochemical, qualitative and quantitative estimation of phytochemicals, determination of total phenol and flavonoid content, antioxidant activity, Anti-inflammatory and FT-IR spectral analysis in floral parts of Jasminum grandiflorum.

Methods: The solvents methanol, and aqueous are used for extraction of Jasminum grandiflorum plant parts. Phytochemical screening of plant parts was carried out in both the solvents. Determination of total phenol content was carried out using Folin – Ciocalteau method and total flavonoid content using Aluminium chloride spectrophotometric method. Antioxidant activity of methanolic extract of plant samples were evaluated with DPPH standard method. The FT-IR is a very useful technique for identifying the functional groups present in the mixture.

Results: The result revealed the presence of flavonoids, saponins, tannins, Steroidal glycosides, Triterpenoids, Carbohydrate , Phenolic compound, tannins steroids in methanol and aqueous extract but alkaloids were absent in aqueous extract. Total phenol content was expressed in mg of Gallic Acid Equivalent (GAE) per g of dry weight. In results it was found that methanol extract shows highest phenol content 465.94 mg/g in flowers. The content of flavonoids was expressed in mg of Quercetin Equivalent (QE) per g of dry weight. It was evaluated that total flavonoid content found highest in flowers 445.24 mg/g in methanol extract. IC_{50} for standard ascorbic acid was found to be 87.89 µg/ml and for methanol and aqueous extract flower was found to be 65.73 µg/ml and 69.73. µg/ml respectively. The DPPH radical scavenging activity of Jasminum grandiflorum was evaluated and compared with ascorbic acid. The presence inhibition of flowers extract was calculated at various concentration (10,20,30,40,50 etc.) as well as standard ascorbic acid. The highest scavenging activity of methanolic and aqueous extract were 47.1.9±0.207 % and 45.2±0.403 % at concentration of 50 µg/ml. FT-IR analysis of methanol flower and aqueous extracts of Jasminum grandiflorum confirmed the presence of phenols, alcohols, carboxylic acid, amide, aldehydes, ketones, alkanes, alkenes, aromatics, amines and alkyl halides which show major peaks.

Conclusion: The results obtained from the preliminary standardization of Jasminum grandiflorumare very helpful in the determination of the quality and purity of the crude drug. The refurbished findings of Jasminum grandiflorumare promising, and further research is important to identify the bioactive compounds, thereby developing nutritional supplements and medications through therapeutic compound isolation.

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Keyword: Jasminum grandiflorum, Phytochemical Screening, Total flavonoids, Antioxidant activity , Anti-inflammatory, FT-IR Spectral, Pharmacological activity,

I. INTRODUCTION

Medicinal plants constitute immense amount of raw materials for the synthesis of medicines, cosmetics and perfumes. In modern times plant derived natural products have been isolated for drug discovery and development. In the present scenario, research on plant materials for their therapeutic value is growing exponentially due to its lesser side effects compared to other systems of medicines [1].Medicinal plants and their derivatives are a vital source of bioactive compounds, widely recognized for their ability in enhancing physical health and treating chronic inflammatory conditions[2].Given their therapeutic potential, the World Health Organization has actively promoted integrative research that bridges the gap between food and medicine, a movement that has gained substantial momentum in ethnopharmacological studies [3].This rising interest in plant-based compounds aligns with a growing body of literature that highlights the antioxidant and anti-inflammatory properties of herbs and spices. These effects are primarily attributed to bioactive compounds such as polyphenols, flavonoids, and terpenoids, well-known for their health-promoting activities[4]. Medicinal plants have long been used as dietary supplements to reduce the risk of chronic diseases, inflammation, cancer, and metabolic syndromes. Traditional remedies possess therapeutic properties[5].

Jasminum grandiflorum, which belongs to the Oleaceae family, is most commonly used in the fragrance industry due to its aromatic compound content [**6**]. It is also known for its therapeutic effects, especially in the treatment of spasmolysis, conjunctivitis and dermatitis but also for wound care, infections and mental diseases, and for its beneficial effect in the treatment of cancer [7].

It is a medicinally significant plant widely used in traditional and Ayurvedic medicine. While its flowers and leaves are well known for their therapeutic benefits, the stem also contains bioactive compounds that contribute to its pharmacological properties, including wound healing[8], anti-bacterial [9], analgesic, aphrodisiac, anti-ulcer [10], cytotoxic, antioxidant [11], sedative, immunity stimulant, and antidepressant. antipyretic and antifungal activities [12]. The medicinal significance of Jasminum grandiflorum stem highlights its potential as a natural alternative for treating fever and fungal infections. Further scientific research is necessary to validate its efficacy and explore its mechanisms of action.

Inflammation is the normal response of body's immune system that occurs in vascular tissues against harmful stimuli such as pathogens, cellular damage and irritants [13]. Chronic inflammation is usually associated with an increase in reactive nitrogen and oxygen species production bringing about an oxidative stress initiated by an imbalance between reactive oxygen species and the biological system's defence able to eliminate these free radicals [14]. This oxidative stress has been involved in several diseases including cancer, neurodegenerative diseases, atherosclerosis, malaria, chronic fatigue syndrome and rheumatoid arthritis [15-16]. Recently there has been an extensive interest in the therapeutic potential of medicinal plants as antioxidants in scavenging such free radical-induced tissue injury [17].

Fig. 1: Jasminum grandiflorum flower

II. MATERIALS AND METHODS

2.1 Plant Collection and Authentication:

Jasminum grandiflorum flowers were collected from the Mainpat Hiis Surguja Chhattisgarh . The plants were authenticated by Prof.Rijwan Ulla, Department of Botany, Rajeev Gandhi Govt. Autonomous Post Graduate College Ambikapur, Surguja, Chhattisgarh, India. The plant materials were dried under shade by placing in a single layer and coarsely powdered by hand mixer and pass through sieve no 60.

2.2 Preparation of Plant Extract

The collected samples were washed with clean water and dried in the shed for about three weeks. The dry samples were chopped into pieces and ground into powder by using a mechanical grinder. The powdered materials were stored in

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clean plastic bottles until the use. The materials were subjected to Soxhlet's extraction using methanol and aqueous solvent. The extracts were concentrated in a rotary evaporator. The extracts were stored at 4˚C, till used for analysis.

2.3 Preliminary Physicochemical Characteristics:

Air dried flowers were used for quantitative determination of proximate analysis e.g. loss on drying, total ash, acid insoluble ash, alcohol soluble extractive values. These physicochemical studies were done according to standard procedure of Indian Pharmacopoeia and WHO guidelines [18- 19].

2.4Qualitative Phytochemical Tests:

Each extract was subjected to qualitative tests for identification of various constituents like alkaloids, carbohydrates, glycosides, steroids, saponins, flavonoids, tannins and phenolic compounds and proteins. The preliminary phytochemical screenings of extracts were performed according to standard procedure [20-22].

2.5 Quantitative Phytochemical Screening

The quantitative phytochemical screening was performed by determining total phenolic content (TPC) and total flavonoid content (TFC) of the extracts. The TPC and TFC of the extracts were expressed as milligrams of gallic acid equivalent per gram (mg GAE/g) of extracts and milligrams quercetin equivalent per gram (mg QE/g) of extracts, respectively.

Determination of Total Flavonoid Content (TFC)

0.5 ml of each extract (50 mg/ml) was separately mixed with 1.5 ml methanol and 0.1 ml aluminium trichloride (10%). Then, 0.1 ml of 1 M potassium acetate and 2.8 ml distilled water was added into each test tube. Then, absorbance at 415 nm was measured after it was allowed to stand in the dark for 30 min using a UV-visible spectrophotometer. Finally, a calibration curve was prepared with a series of quercetin standards (10-50 µg/ml) and the total flavonoid compound concentration was determined in terms of mg QE/g of the extract [23].

Determination of Total Phenolic Content (TPC)

Folin–Ciocalteu reagent was used for the determination of total polyphenolic content. 0.5 ml of each extract (5 mg/ml), Folin–Ciocalteu reagent (5 ml, 1:10 v/v diluted with distilled water) and aqueous sodium carbonate (4 ml, 1 M) solution were mixed together. The mixture was allowed to stand in the dark for 15 min at room temperature, and the absorbance at 765 nm was measured with the help of ultraviolet (UV-visible) spectrophotometer. Then, the total polyphenolic content was determined in terms of mg GAE/g of dry weight of the extract with the help of a calibration curve prepared with a series of gallic acid standards (10-80 µg/ml)[24].

2.6 In-Vitro Antioxidant Activity

Hydrogen-Donating Activity (DPPH free Radical scavenging)

This assay was used in many studies for testing antioxidant activity. 2,2-diphenyl-1-picryl-hydrazil stable radical (DPPH) evidently offers a convenient and accurate method for titrating the oxidizable groups of natural and synthetic antioxidants. This assay was based on the reduction of a methanolic solution of the colored free radical DPPH by free radical scavenger. The degradation of DPPH was evaluated by comparison with a control sample without hydrogen-donating compounds. The decrease in absorbance of DPPH at its absorbance maximum of 517 nm was proportional to the concentration of free radical scavenger added to DPPH reagent solution. Lower absorbance of reaction mixture indicated higher antioxidant activity. In this experiment methanolic solution of DPPH (100 mM, 2.95 ml), 0.05 ml of each extracts dissolved in methanol was added at different concentrations (10-50 µg/ml). Reaction mixture was shaken and after 30 min at room temperature, the absorbance values were measured at 517 nm and converted into percentage of antioxidant activity (% AA). Ascorbic acid was used as standard [25-26].

The degree of discoloration indicates the scavenging efficacy of the extract, was calculated by the following equation:

$$\text{Antioxidant activity (\%)} = \left[\frac{\text{Abs}_{1h}}{\text{Abs}_{\text{initial}}}\right] \times 100\%$$

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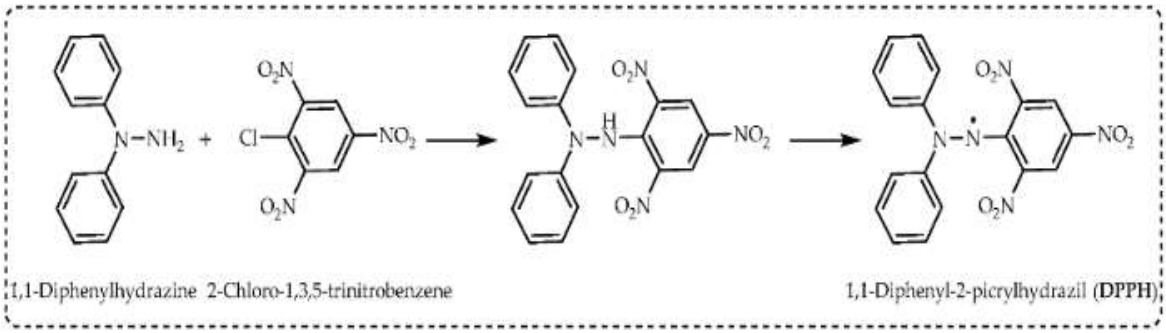

Fig 2: The synthesis route of 1,1-diphenyl-2-picrylhydrazil radicals (DPPH·).

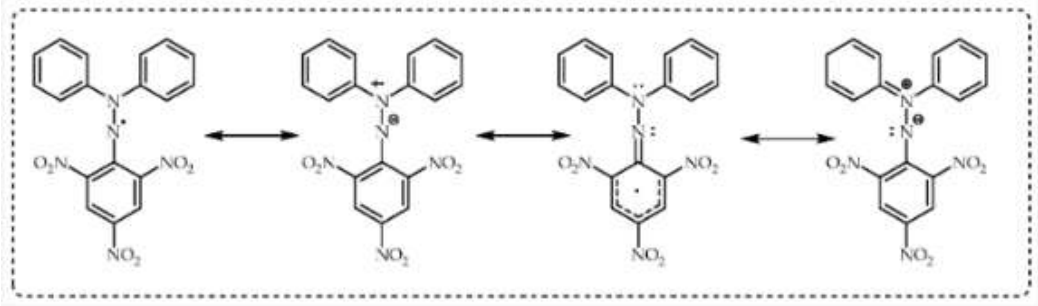

Fig 3. The chemical structures of a 1,1-diphenyl-2-picrylhydrazil radical (DPPH·).

2.7 Assessment of In -vitro anti-inflammatory activity

Inhibition of protein denaturation

The in vitro anti-inflammatory activity of the hydroalcoholic extract of the flower of Jasminum grandiflorum was studied using the egg albumin protein denaturation assay according to Fetni et.al with some modifications [27]. For each concentration of methanolic extract (2 mL) or standard (Sodiumdiclofenac), 2.8 mL of phosphate-buffered saline (PBS), pH= 6.5 was added, mixed with 0.2 mL of egg albumin (fresh). Samples were incubated in a 37 °C oven for 15 min, then immersed in a 70 °C water bath for 5 min. After cooling the tubes, the absorbance (level of protein precipitation) was measured at 660 nm in a spectrophotometer [28].

The percentage inhibition of protein denaturation was calculated as:

Percentage inhibition = (Abs control – Abs sample) × 100/Abs control

The result is an average of three replicates. This method evaluates the potential of the extract to inhibit the denaturation of proteins, hence indicating its anti-inflammatory properties.

2.8 Fourier Transform Infrared Spectrophotometer (FT-IR)

Fourier Transform Infrared Spectrophotometer (FTIR) is perhaps the most powerful tool for identifying the types of chemical bonds (functional groups) present in compounds. The wavelength of light absorbed is characteristic of the chemical bond as can be seen in the annotated spectrum. By interpreting the infrared absorption spectrum, the chemical bonds in a molecule can be determined. Dried powder of different solvent extracts of each plant materials were used for FTIR analysis. 10 mg of the dried extract powder was encapsulated in 100 mg of KBr pellet, in order to prepare translucent sample discs. The powdered sample of each plant specimen was loaded in FTIR spectroscope (Shimadzu, IR Affinity 1, Japan) [29], with a Scan range from 400 to 4000 cm 1 with a resolution of 4 cm^{-1}

III. RESULT AND DISCUSSION

3.1. Physiochemical parameters

Physiochemical parameters of the flower of Jasminum grandiflorumare tabulated in Table 3.1. Different extracts of the powdered flower were prepared for the study of extractive values. Percentage of extractive values was calculated with reference to the air-dried drug. Deterioration time of the plant material depends upon the amount of water present in plant material. If the water content is high, the plant material can be easily deteriorated due to fungus. The loss on drying at 105 °C in flower was found to be 10.1%. Total ash value of plant material indicated the amount of minerals and earthy materials attached to the plant material. Physiochemical parameters of the flower of

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Jasminum grandiflorumare tabulated in Table 3.1. Studies of physicochemical characterization can serve as a valuable source of information and are usually applied in judging the purity and quality of the drug. The extractive values give an idea about the chemical constitution of the drug.

Table 3.1**:**Physico-chemical parameters of flower Jasminum grandiflorum

S.N	Parameters	Results (%w/w)
1	**Ash value**	
	Total Ash	7.89
	Acid insoluble Ash	1.87
	Water -soluble Ash	2.92
2.	**Extractive value**	
	Water soluble extractive value	18.50
	Methanol soluble extractive value	16.80
3.	**Loss on Drying**	5.25

Jasminum grandiflorumflower ethanol extract has the highest solubility of phytochemicals when extracted with methanol than aqueous extracts tested. Analytical results showed the results are in agreement with Jasminum grandiflorum flower extracts total ash 7.89, acid insoluble 1.87, water-soluble ash 2.92, water-soluble extractive value 18.50, methanol soluble extractive value 16.80, and loss of drying (moisture of contents) 5.25.

3.2 Phytochemical Screening

The study of the chemical constituents and the active principles of the medicinal plants have acquired a lot of importance all over the world [30]. The present study includes the phytochemical screening of the plants Jasminum grandiflorum. The qualitative chemical tests for the methanolic extracts were performed. The investigation showed that Jasminum grandiflorum contains flavonoids, saponins, Steroidal glycosides, Triterpenoids, Phenolic compound, steroids, carbohydrate, amino acid and protein present in methanol and tannins, Saponins, Glycoside, alkaloids , amino acid and protein were absent in aqueous extract.

Table 3.2: Phytochemical Screening of Jasminum grandiflorum flower Methanolic and Aqueous extract

S.N	Phytochemicals	Methanolic Extract	Aqueous Extract
1	Flavonoid	+	+
2	Saponins	+	-
3	Tannins	+	-
4	Steroidal Glycoside	+	+
5	Triterpenoids	+	+
6	Glycoside	+	-
7	Carbohydrate	+	-
8	Alkaloid	+	-
9	Steroids	+	+
10	Phenolic compound	+	+
11	Amino acid and Protein	+	+

(+): Presence, (-): Absent

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3.3 Estimation of total phenolics and total flavonoids content

The results given in table 3.2 show that the total phenol content and total flavonoid of Jasminum grandiflorum flowers are methanolic 465.94± 0.17, 445.24 ± 0.16 and aqueous extract 335.20± 0.35, 323.72± 0.23 respectively. The above results showed that aqueous extract contain less phenolic and flavonoids content than the alcoholic extract. It may due to the solubility of principle contents presence be higher in case of alcoholic solvent, thus it has been accepted that it is a universal solvent for the extraction of plant constituents

Table 4.3**:** Estimation of total phenolics and total flavonoids content in Jasminum grandiflorum flower

S.N.	Extract	Test Parameter	Results(mg/g) (±SEM)
1.	Methanol	Total phenolic Total Flavonoids	465.94± 0.17 445.24± 0.16
2.	Aqueous	Total phenolic Total Flavonoids	335.20± 0.35 323.72± 0.23

3.4 ANTIOXIDANT ACTIVITY

DPPH scavenging activity

DPPH scavenging activity of Jasminum grandiflorum flower extracts against DPPH radical were determined and the results are shown in table (4.2, 4.3). DPPH scavenging activity has been used by various researchers as a rapid, easy and reliable parameter for screening the in vitro antioxidant activity of plant extracts. DPPH is a stable free radical and accepts an electron to become a stable diamagnetic molecule. The absorption maximum of a stable DPPH radical in methanol was at 517nm. IC_{50} for standard ascorbic acid was found to be 45.2±0.403 µg/ml and for methanol and aqueous extract flower was found to be 65.73 µg/ml and 75.42 µg/ml, respectively. In order to study the effects of these compounds on biological system more studies are needed as these compounds might be responsible for use of this plant in different diseases [31]. The DPPH radical scavenging activity of Jasminum grandiflorum was evaluated and compared with ascorbic acid. The presence inhibition of flowers extract was calculated at various concentration (10, 20, 30, 40, 50 etc.) as well as standard ascorbic acid. The highest scavenging activity of methanolic and aqueous extract were 47.1±0.207 and 45.2±0.403 % at concentration of 50 µg/ml.

Table 3.3: Free radical scavenging capacity of Sample
(Methanol Extract of Jasminum grandiflorum)

Values are mean ± SD (n=5)

S.N	**Concentration µg/ml**	**DPPH Scavenging %**			
		Methanol extract	IC_{50}	Ascorbic acid	IC_{50}
1.	10	33.58±0.30	65.73	25.4±0.35	87.89
2.	20	35.48±0.33		27.2±0.24	
3.	30	34.4±0.27		29.4±0.27	
4.	40	41±0.288		32.6±0.18	
5.	50	47.1±0.207		39.3±0.28	

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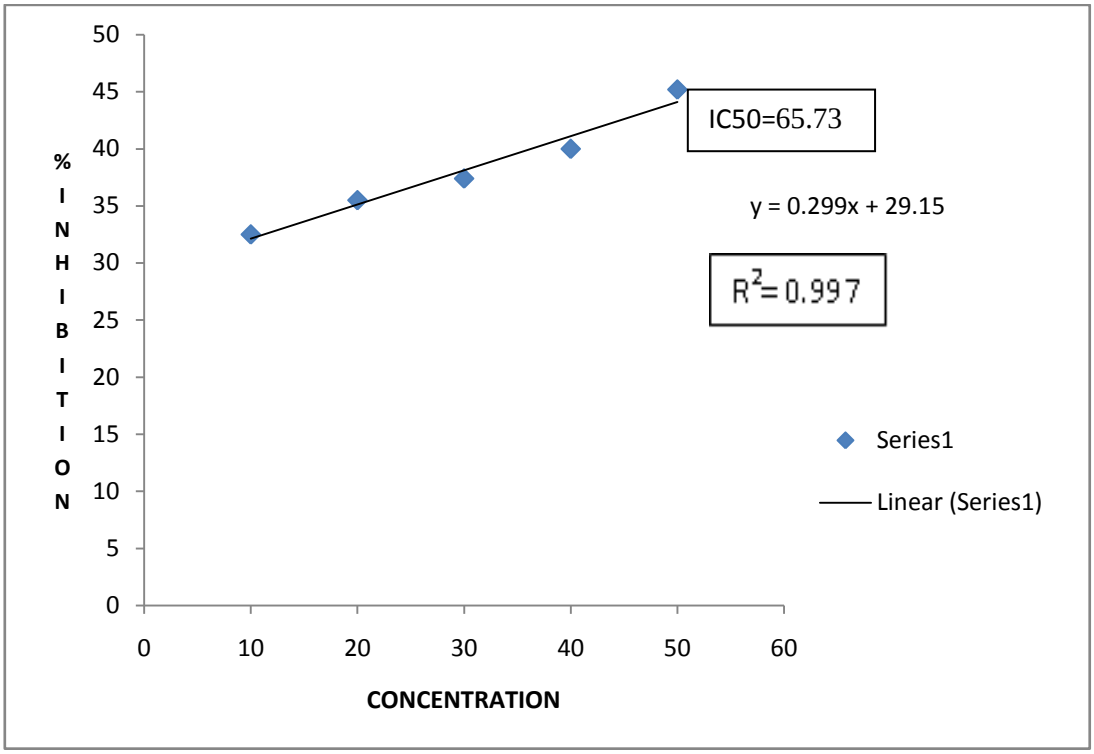

Fig.4Scavenging effect of sample (Methanol extract) on DPPH assay.

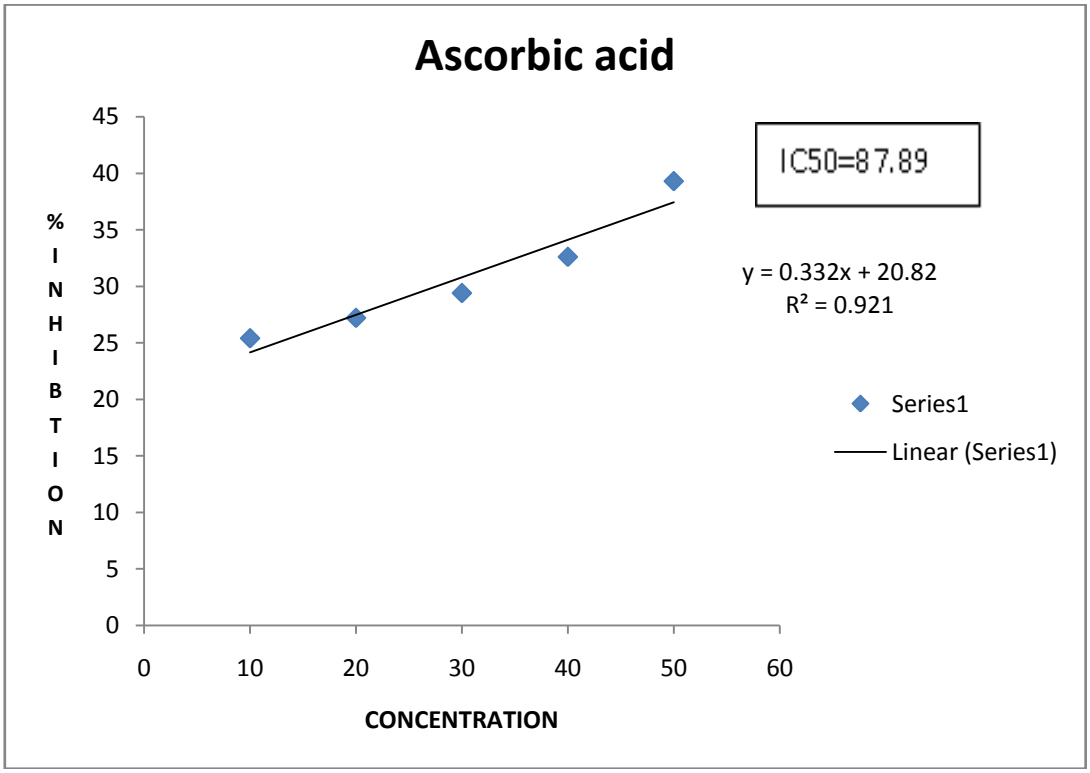

Fig. 5Scavenging effect of ascorbic acid on DPPH assay

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Table 3.4: Free radical scavenging capacity of Sample
(Aqueous extract of Jasminum grandiflorum**)**

S.N	**Concentration µg/ml**	**DPPH Scavenging %**			
		Sample Aqueous extract	IC_{50}	Ascorbic acid	IC_{50}
1	10	32.58±0.30	69.73	21.4±0.25	75.42
2.	20	35.48±0.33		23.2±0.24	
3.	30	37.4±0.27		29.4±0.27	
4.	40	40±0.288		35.6±0.18	
5.	50	45.2±0.403		39.3±0.28	

Values are mean ± SD (n=5)

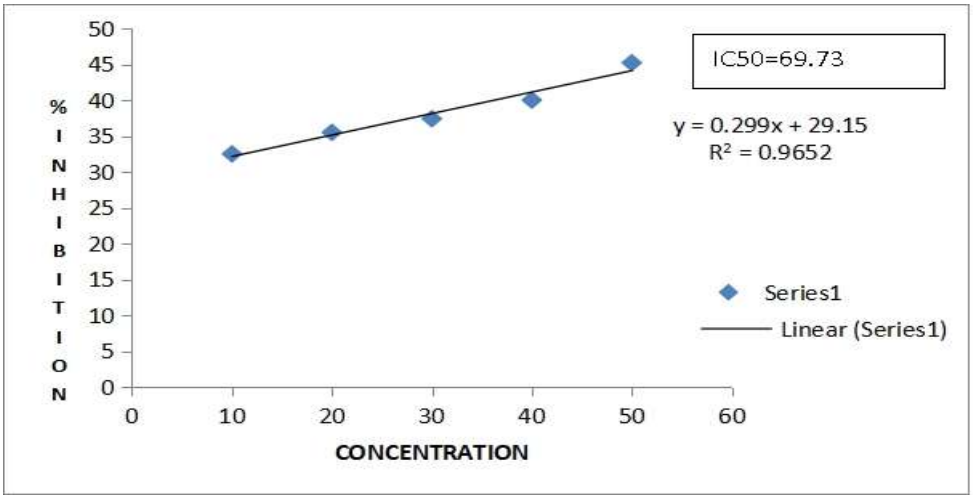

Fig. 6: Scavenging effect of sample (Aqueous extract) on DPPH assay.

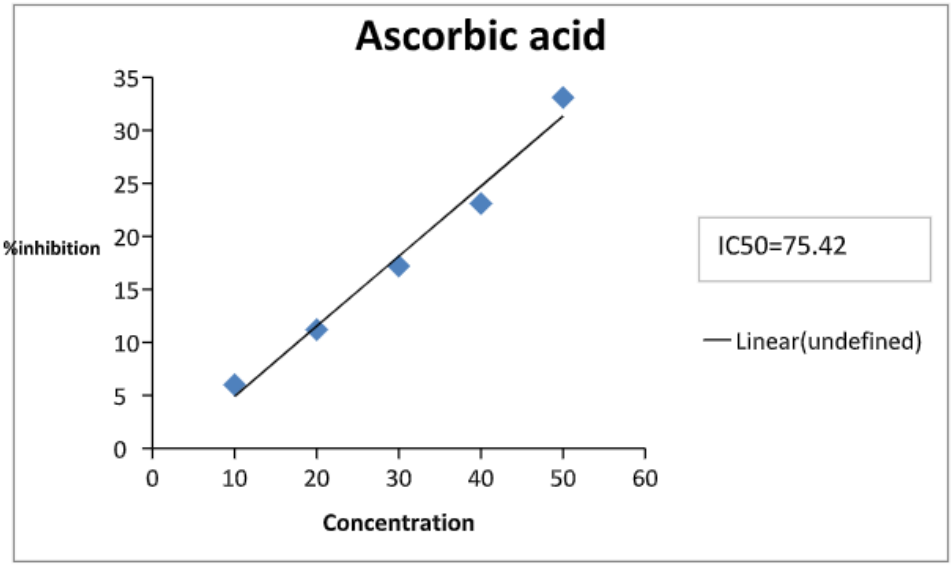

Fig.7.: Scavenging effect of ascorbic acid on DPPH assay

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3.5 The anti-inflammation activity

The ethical challenges and the nonexistence of rationale to use animals for pharmacological research of new chemical compounds, when other suitable methods are available or could be investigated, pushed us to select the protein denaturation bioassay and membrane stabilization potential for in vitro evaluation of anti- inflammatory property activity of studied plant materials.

The inhibition of protein denaturation

Denaturation of tissue proteins is well-documented as one of the causes of inflammatory and arthritic diseases, through auto antigen production [32] and the ability of plant material to bring down the protein denaturation could be effective against inflammation diseases. The in vitro anti-inflammatory activity of the methanolic extract of Jasminum grandiflorum flower and sodium diclofenac was analyzed using the protein denaturation method, as shown in 3.5. The results presented show a concentration-dependent inhibition of protein (albumin) denaturation by the samples. Sodium diclofenac was used as a reference drug at the same concentration. The results indicate that the methanolic extract of Jasminum grandiflorum flower has a very good inhibitory effect, reaching a percentage of 84.70 ± 0.9 % at a concentration of 100 g/L, compared to diclofenac, which showed an inhibition percentage of 118.40± 0.8%.

Table 3.5: Percentages of inhibition of protein denaturation of the methanolic extract of Jasminum grandiflorum Flower and sodium diclofenac at different concentrations.

S.N.	Concentrations (g/L)	Inhibition of protein denaturation (%)	
		Methanolic extract (%)	Sodium Diclofenac (%)
1	20	14.8 ± 0.3	10.6 ± 0.5
2	40	22.30 ± 0.4	18.70 ± 0.6
3	60	65.80 ± 0.8	42. 60 ±1.2
4	80	95.10 ± 0.2	68.60 ± 0.3
5	100	118.40 ± 0.8.	84.70 ± 0.9

Samples and positive control were performed in triplicate (n=3). SD = standard deviation.

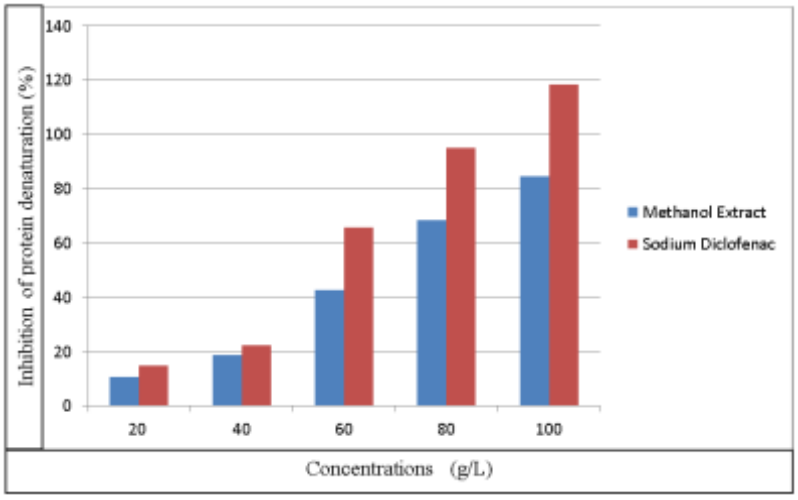

Fig.8: Jasminum grandiflorum methanol extract effect on albumin denaturation.

This observation is consistent with recent research highlighting the efficacy of plant extracts, particularly those containing flavonoids and saponins, in modulating inflammatory responses. For example, studies have shown that flavonoids found in Jasminum grandiflorum exert anti-inflammatory effects by inhibiting the release of pro-inflammatory cytokines and modulating cellular pathways involved in inflammation [33].In addition, saponins are recognized for their ability to

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interfere with the activation of inflammatory mediators, reinforcing the idea that plant extracts may provide a viable alternative to conventional pharmaceutical treatments [34].

Further research highlights the potential of natural products in the treatment of chronic inflammatory diseases, which is particularly relevant given the increasing prevalence of these conditions. The side effects associated with NSAIDs, including gastrointestinal disturbances and cardiovascular risks, underscore the need to seek safer and more effective alternatives. Licorice extract, with its favorable safety profile and demonstrated efficacy, may represent a promising avenue for the development of anti-inflammatory treatments.

3.6 FTIR Spectral Data Interpretation

FT-IR study Table 3.6 shows the functional groups of the organic and inorganic compounds of the plant extract. The FTIR methods was performed on a spectrophotometer system, which was used to detect the characteristics peak values and their functional group. Infra spectrum shows beak area 3269.84 cm^{-1} (O–H stretch, free hydroxyl, phenols and 3011.05 cm^{-1} is presence of OH groups. The peak area at 2923.40, 2853.33 cm^{-1}vibration C-H stretching alkane and C-H stretching aldehyde. The beak area at 2179.92 and 2026.57 cm^{-1} shows C≡C stretching alkyne and aromatic compound. A strong stretching vibration at 1743.63 cm^{-1} and 1621.02 cm-1 shows the presence of carbonyl(C=O) and alkene(C=C) groups. The beak at 1529.51 cm-^{1} N–O stretch (in–ring) Nitro compound and 1462.76 cm^{-1} show C–H bend alkanes. The beak area a 1336.78 cm^{-1} shows O–H bending phenol. The beak at 1229.40 cm^{-1} shows Alkyl amine group. 857.05cm^{-1} beak shows C-H out plane bending. The beak areas 715.02 cm^{-1}, shows halogen compounds like C-Cl, compounds. FT-IR analysis of methanol flower and aqueous extracts of Jasminum grandiflorum confirmed the presence of phenols, alcohols, carboxylic acid, amide, aldehydes, ketones, alkanes, alkenes, aromatics, amines and alkyl halides which show major peaks [35-36].

Table 3.6: FT-IR spectrum of Methanolic and Aqueous extract of Jasminum grandiflorum

Extract	Peak Value (cm^{-1})	Group	Class	Peak Detail
Methanolic Extract	665-730	C=C bending	Alkene	Strong
	857.05	C=C bending	alkene	Medium
	1068.13	C-O stretching	Primary Alcohol	Strong
	1163.75	C-O stretching	Ether	Strong
	1229.40	C-N stretching	Amine	Medium
	1336.78	O-H Bending	Phenol	Medium
	1416.59	O-H Bending	Aldehyde	Medium
	1462.76	C-H Bending	Alkane	Strong
	1529.51	N-O Stretching	Nitro Compound	Medium
	1621.02	C=C Stretching	Alkene	Weak
	1743.63	C=C Stretching	Carboxylic acid	Strong
	1870.25	C=O Stretching	Conjugated Anhy	Strong
	2026.57	C-H Bending	Aromatic Comp.	Weak
	2179.92	C≡C stretching	Alkyne	Weak
	2350.36	O=C=O stretch.	Carbon dioxide	Strong
	2853.33	C-H Stretching	Aldehyde	Medium
	2923.40	C-H Stretching	Alkane	Medium
	3011.05	O-H Stretching	Alcohol	Weak
	3269.84	O-H Stretching	Alcohol	Strong
Aqueous Extract	614.52	C=C bending	Alkene	Strong
	886.12	C=C bending	Alkene	Strong
	1046.87	C-O Stretching	Primary alcohol	Strong
	1098.17	C-O Stretching	Ether	Strong
	1183.50	C-O Stretching	Aryl ether	Strong
	1249.22	C-N Stretching	Aromatic Amine	Strong
	1386.26	C-H Bending	Aldehyde	Medium

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	1613.91	N-H Bending	Amine	Medium
	1723.29	C=C Stretching	Carboxylic acid	Strong
	1890.14	C=O Streching	Conjugated Anh.	Strong
	1992.12	C=C=CBending	Allele	Medium
	2132.07	C≡C stretching	Alkyne	Weak
	2931.54	C-H Stretching	Alkene	Medium
	3262.93	O-H Stretching	Alcohol	Strong

Spectral differences are the objective reflection of componential differences. By using FT-IR spectrum, we can confirm the functional constituent's presence in the given parts and extract, identify the medicinal materials from the adulterate and even evaluate the qualities of medicinal materials The results of the present study coincided with the previous observations observed by various plant biologist and taxonomist many researchers applied the FT-IR spectrum as a tool for distinguishing closely associated plants.

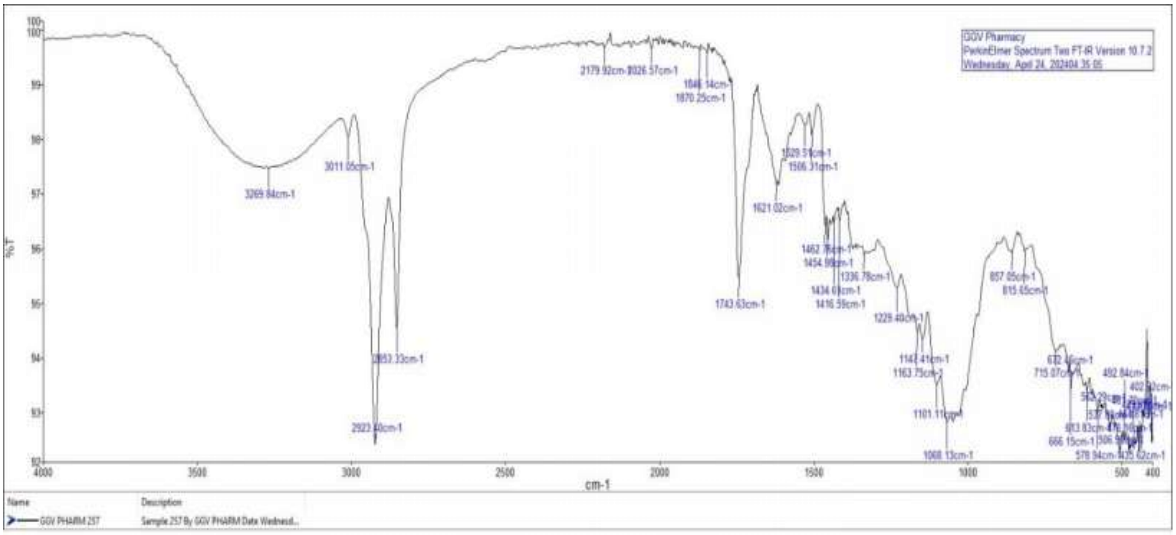

Fig 9: Shows the FT-IR frequency range of methanolicJasminum grandiflorum flower.

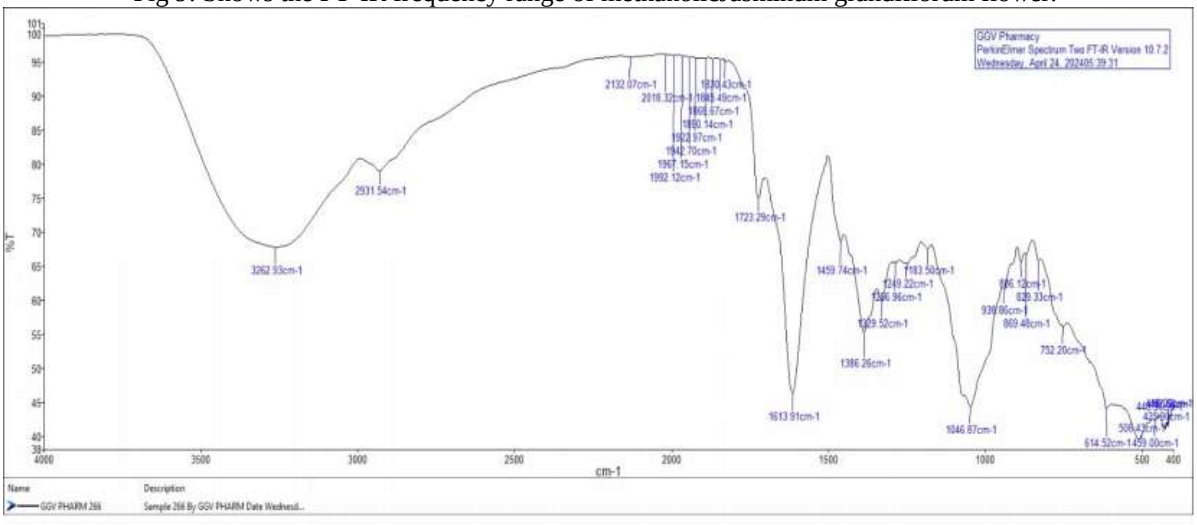

Fig 10: Shows the FT-IR frequency range of aqueous Jasminum grandiflorum flower.

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IV. CONCLUSION

In conclusion, present study revealed the flower extracts of Jasminium grandiflorum have been found to contain various phyto constituents, including alkaloids, flavonoids, Steroids, glycoside,tannins, and phenolic compounds. These secondary metabolites are known for their significant medicinal properties including antioxidant activity and anti-inflammatory activities. The presence of flavonoids and related polyphenols may be responsible for thevarious pharmacological activity. Further investigations are required to find active component of the extract and to confirm the mechanism of action.

CONFLICTS OF INTEREST:

The authors declare no conflict of interest.

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