

COMPARATIVE PRELIMINARY PHYTOCHEMICAL STUDIES OF *JASMINIUM MULTIFLORUM* AND *JASMINUM OFFICINALE*

Patil K. J.* Patil V. A., Patil S.V.**, and Bhuktar A.S.*****

*Department of Biotechnology, Moolji Jaitha College, Jalgaon, (M.S.), India.

**Department of Botany, Bhusawal Arts, Science and P.O.Nahata Commerce College, Bhusawal, (M.S.), India.

***Vivekanand Arts, Sardar Dalipsingh Commerce and Science College, Aurangabad, (M.S.), India.

(E-mail: udrkjpatil@gmail.com, patilvidya67@yahoo.co.in)

ABSTRACT

The traditional medicine involves the use of different plants extracts or the bioactive constituents. From ancient times India is mostly rely on traditional medicine. In fact the herbal medicine was the base of modern medicine. Present investigation deals with the phytochemical studies of leaves of *Jasminium multiflorum* (Burm.f.) Andr, and *Jasminum officinale* a scandent shrub collected from Bhusawal Arts, Science and P.O.Nahata Commerce College, Bhusawal Botanical garden. *Jasminium multiflorum* (Burm.f.) Andr. and *Jasminum officinale* was studied with the aim of drawing the phytochemical standards for the species. The determination of these characters will help future researchers in characterization of phyto-chemicals.

KEY WORDS: *Jasminium multiflorum*, *Jasminum officinale* and Phytochemicals

INTRODUCTION

Jasminium multiflorum (Burm. f.) Andr. and *Jasminum officinale* Belongs to family Oleaceae is a an evergreen shrub, it usually climbs up as a vine and reaches to a height of about 8 to 10 feet. Jasmine is scientifically known as Arabian Jasmine in English and in Marathi it is called as Kunda. People use the Jasmine flowers as religious offerings to the Gods like Lord Shiva and Lord Vishnu. Jasmine leaves are either evergreen or deciduous. This implies that either the leaves will remain evergreen or will fall off at maturity. The stems and leaves are covered with a downy pubescence that gives the plant an overall grayish-green appearance. The leaves are ovate and rounded at the base, up to 2 in (5.1 cm) long, and opposite each other on the stem. The Jasmine flower forms a vital ingredient of almost all ayurvedic medicines owing to its diverse curing qualities. Specifically it is used to remove intestinal worms. It is considered to be an apt and biological cure for jaundice and other venereal diseases. The flower buds help in treatment of ulcers, vesicles, boils, skin diseases and eye disorders. The leaves extracts against breast tumors, its oil is very effective in calming and relaxing, drinking Jasmine tea regularly helps in curing cancer. Jasmine is also used for making perfumes and incense to increase scent. Flowers are considered to a great skin toner and conditioner and used in shampoos, soaps, creams. *Jasminum officinale* L twiners or scandent, glabrous shrubs Leaves opposite, pinnate; leaflets elliptic or ovate, acute or acuminate, 5-7, pubescent. Flowers white, fragrant, in biparous cymes and fruits are globose black. It flowers in February to November local name is Chameli.

J. sambac is widely used in traditional system of medicines for treatment of fever, ulcer, diarrhea, diabetes and skin diseases like itching, leprosy etc. by Swati *et.al.*, (2011). The *Jasmine sambac* and *Jasmine grandiflorum* are most studied plants. *Jasmine sambac* leaves are soaked in cold water and drink to treat gallstones and roots are boiled with water and the infusion is taken to treat diabetes mellitus (Anub *et al.*, 2010). In Thai medicine it is used in the Thai sauna and steam bath for calming the mind, easing headaches and as a tonic for the heart and blood and knows as female tonic. The anti-bacterial activity *J. grandiflorum* and *J. sambac* was studied by Joy and Raja (2008). The antitumor activity of *J. sambac* (Linn.) was studied by Kalaiselvi *et al.* (2011). As compared to *J. grandiflorum* and *J. sambac*, *J. multiflorum* is not studied.

MATERIALS AND METHODS

The leaves of both species were collected from, Bhusawal Arts, Science and P.O.Nahata Commerce College, Bhusawal Botanical garden. The leaf materials were identified by Dr. S.R. Mahajan and Dr. S.V. Patil, Bhusawal Arts, Science and P.O.Nahata Commerce College, Bhusawal. Herbarium was deposited at college.

Extraction, Isolation and Identification

The leaves of *Jasminium multiflorum* and *J. officinale* were collected, shade dried, powder was prepared and extracted with 70% Ethanol and chloroform using Soxhlet extraction method. The extract was concentrated in evaporating disc on water bath.

Preliminary phytochemical studies

Phytochemical screening was carried out using standard procedure described by Santhi *et al.* (2011), Savithamma *et al.* (2011), and Vaghasiya *et al.* (2011) selected methods were depicted in table 1.

Table 1 Methods used for screening of secondary metabolites

Sr. No	Phytochemical	Test	Positive Observation
1	Alkaloids	1ml of extract adds 1% HCl and 6 drops of Mayer's reagent and few drops of Dragendroff's reagent.	Organic precipitate indicated the presence of alkaloids
2	Flavonoids	5ml of dilute ammonia solution were added to a portion of aqueous filtrate of extract followed by addition of con. H ₂ SO ₄ .	A yellow coloration is observed which confirms the presence of flavonoids
3	Terpenoids	5ml of extract was added to 2ml of chloroform and 3ml of con. H ₂ SO ₄ .	Formation of reddish brown monolayer at coloration of the interface was showed to form positive result for terpenoids
4	Tannins	5ml of extract was added to few drops of 1% lead acetate.	A yellow precipitate indicate the presence of tannins
5	Saponins	5ml of extract was added to 20ml of distilled water was agitated in a graduated cylinder for 15 minutes.	The formation of a layer of foam indicates the presence of saponins
6	Coumarins	3ml of 10% NaOH was added to 2ml of aqueous extract	Formation of yellow color indicates the presence of coumarins
7	Emodins	2ml of NH ₄ OH and 3ml Benzene was added to the extract.	Appearance of red color indicates the presence of emodins
8	Anthocyanins	2ml of aqueous extract is added to 2ml of 2N HCl and ammonia.	The appearance of pink-red turns blue violet indicates the presence of anthocyanins
9	Leucoanthocyanins	5ml of aqueous extract added to 5ml of isoamyl alcohol	Upper layer appears red in color indicates for presence of leucoanthocyanins
10	Steroids	1ml of the extract was dissolved in 10ml of chloroform and equal volume of concentrated sulphuric acid was added by sides of the test tube.	The upper layer turns red and sulphuric acid layer showed yellow with green fluorescence indicate the presence of steroids
11	Phlobatinins	aqueous extract were boiled with 1% aqueous HCl	red precipitate was deposition indicate the presence of phlobatinins

RESULTS AND DISCUSSION

The phytochemical screening of qualitative estimation of the plants studied showed that the *Jasminium multiflorum* and *Jasminum officinale* are rich sources of medicinally active metabolites. The phytochemical characters of both plants investigated are summarized in table 2 given below.

Table 2 Phytochemical screening of *Jasminium multiflorum* and *Jasminum officinale*

Sr. No.	Secondary metabolites	sample A	sample A	Sample B	Sample B
	Solvent used	ethanol	chloroform	Ethanol	Chloroform
1	Alkolide	positive	positive	Positive	Positive
2	Flavonoids	negative	positive	Negative	Positive
3	Terpenoids	positive	positive	Negative	Negative
4	Tannins	positive	positive	Negative	Negative
5	Emodine	positive	negative	Negative	Positive
6	Leucoanthocyanins	positive	negative	Positive	Negative
7	Steroids	positive	positive	Positive	Positive
8	Coumarins	positive	negative	Positive	Positive
9	Anthocyanins	negative	negative	Negative	Positive
10	Phlobatinins	positive	negative	Negative	Negative
11	Saponins	negative	positive	Positive	Positive

Sample A = *Jasminium multiflorum*, Sample B = *Jasminum officinale*

The ethanolic extract of *J. multiflorum* and *J. officinale* were found to contain alkaloids, leucoanthocyanins, steroids and coumarins. Terpenoids, tannins, emodine and phlobatinins are found in *J. multiflorum* and absent in *J. officinale*. Saponin is absent in *J. multiflorum* and found in *J. officinale*. Anthocyanins are absent in ethanolic extract of both plants. Chloroform extract of *J. multiflorum* and *J. officinale* were found to contain alkaloids, flavonoids, steroids and saponins. Terpenoids and tannins are detected in *J. multiflorum* and absent in *J. officinale* whereas emodine, coumarins, anthocyanins are absent in *J. multiflorum* and present in *J. officinale*. Leucoanthocyanins and phlobatinins are absent in leaves of both plants.

REFERENCES

- Anbu Jeba Sunilson., John Samuel., Anandarajagopal Kalusalingam., Dinesh Kumar Chellappan., Rejitha Gopinath., Suraj Radhamani., Hi Azman Husain., Vignesh Muruganandham and Proom Promwichit. (2010).** Ethnomedical survey of plants used by the Orang Asli in Kampung Bawang, perak, west Malaysia. *J. Ethnobiol. Ethnomed.* 6(5): 2-6.
- Joy Priya and Raja Patric .(2008).** Anti-bacterial activity studies of *Jasminium grandiflorum* and *Jasminium sambac*. *Ethnobotanical Leaflets.* 12: 481-483. 2008
- Kalaiselvi Manokaran., Rajasekaran Narmadha., Paramasivam Ragavendran., Ganesan Ravikumar., Duraisamy Gomathi., Dominic Sophia., Chinthamony Arul Raj., Chandrasekar Uma and Kalaivani K. (2012).** In Vivo and In vitro antitumor activity of *Jasminum sambac* (Linn) Ait oleaceae flower against dalton's ascites lymphoma induced swiss albino mice. *International Journal of pharmacy and pharmaceutical sciences* 4(1): 144-147.
- Santhi R., Lakshmi G., Priyadharshini A.M. and Anandaraj L. (2011).** Phytochemical screening of *Nerium oleander* leaves and *Momardica charantia* leaves. *Int.Res.J. Pharmacy.* 2(1):131-135.
- Savithramma N., Rao Linga M. and Suhurulatha D. (2011).** Screening of medicinal plants for secondary metabolites. *Middle East J. Scientific Res.* 8(3): 579-584.
- Swati Sabharwal, Manisha Vats, Satish Sardana, Sushma Agarwal (2011).** Pharmacognostical, physic and phytochemical evaluation of the leaves of *Jasminum sambac* Linn. (Oleaceae)., *Int. J. Pharmacy Pharmaceut. Sci.* 3(4): 237-241.
- Vaghasiya Y., Dave R. and Chanda S. (2011).** Phytochemical analysis of some medicinal plants from western region of India. *Res. J. Medicinal Plants.* 5(5): 567-576.