

# Phytochemical Screening and In-vitro Antihelminthic activity of *Jasminum auriculatum* Leaves

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## Abstract

*India has a diverse and abundant medicinal plant flora. It is utilized at India's customary celebrations. The current work examines the phytochemical screening of an aqueous extract of *Jasminum auriculatum* leaves for in-vitro antihelminthic efficacy. Water-based extraction on *Jasminum auriculatum* leaves was employed in phytochemical screening using a series of phytochemical screening methods. The presence of carbohydrates, alkaloids, phenols, tannins, phytosterols, glycosides, flavonoids, and tannins in an aqueous extract is indicated by phytochemical screening. Tests were conducted on an aqueous extract of *Jasminum auriculatum* leaves at different concentrations (50, 100, and 150 mg/ml). The results were stated in terms of the amount of time the worms took to paralyze and die. Standard saline solution was utilized as the control and albendazole (AL) (10 mg/ml) as the reference standard collective. The study found that the *Jasminum auriculatum* leaf aqueous extract had strong antihelminthic action and was nearly equipotent with a common antihelminthic medication. The presence of sterols, glycosides, and flavonoids may be the cause of the strong antihelminthic action. Based on the aforementioned results, it was determined that *Jasminum auriculatum* leaf aqueous extract possesses notable wormicide active properties.*

**Keywords:** *Antihelminthic activity, phytochemical screening and flavonoids*

## 1. Introduction:

Many medicinal plants have therapeutic qualities that have been linked to the causes of human ailments used for millennia. Traditional herbal remedies are used by 60–90% of people in poor nations, who view them as an essential component of primary healthcare (WHO, 2002).

As people view herbal remedies as safer and more effective than synthetic medications, the market for them has also grown. These plant-derived products are rich in phytochemicals, which are being used in a substantial and diverse manner. phenols, flavonoids, tannins and other phytoconstituents, namely;

Each having a variety of health-related effects, including humoral and cellular immunomodulation, antibacterial and anti-inflammatory properties and more. *Jasminum auriculatum* is one plant with these characteristics.

## **2. *Jasminum auriculatum*'s history and application:**

*Jasminum auriculatum*, often known as Needle jasmine, is a genus of flowering plants from the oleaceae family that is extensively found in Andhra Pradesh and telangana. With over 200 native and cultivated species, one is truly spoilt for choice when it comes to jasmine plants. Jasmine is native to the Old World and is native to southern and south-eastern Asia, where it is distributed and cultivated throughout south India, Sri Lanka, Pakistan, Nepal, Malaysia, Indonesia, and Australia. The sixth edition of the Rang & Dale pharmacology textbook and (Rajinder Raina and Shahid Parwez et al., 2008). Depending on the species, jasmine flower plants can grow as a shrub or as a climber with wood vines. The lustrous, brilliant green foliage of *Jasminum auriculatum* is evergreen and measures two to three inches.

Evergreen *Jasminum auriculatum* The foliage is glossy and brilliant green, with five to nine leaflets arranged pinnately and roughly two to three inches long on each side. The petals are very fragrant and have five or more lobed white petals that are sweetly scented. The shrub *Jasminum auriculatum* is utilized in Ayurvedic, Siddha, and Unani medicine (Bedi et al., 2008). Research on it has revealed that it is beneficial for a variety of conditions, including hyperpiesia, leprosy, nephrolithiasis, odontalgia, ophthalmopathy, strangury, suppurative, skin diseases, thermogenic, urolithiasis, ulcers, and wounds. It has also been shown to be effective in aromatherapy, cardio tonic, corns, diuretic, deodorant, and emollient (Vaidyaratnam P S et al., 2003 and Singh baljinder et al., 2011). The roots, which have bitter, acrid, sweet, refrigerant, astringent, and depurative properties, are used to cure skin conditions, particularly ringworm. Typically, the blossoms feel scorching (Ghosh MN., 1984). Jasminol and lupeol are found in the leaves (SM et al., 1967). *Jasminum auriculatum* flower extracts, both alcoholic and aqueous, demonstrated diuretic activity by raising urine volume overall and potassium and sodium salt concentrations in urine (Bahuguna y Juyal v et al., 2009 a) and antiurolithiatic urinary by lowering elevated oxalate synthesis (Bahuguna y Rawat M S M et al., 2009b).

## **3. Experimental work:**

### **3.1. Materials and methods:**

*Jasminum auriculatum* leaves were plucked fresh from the herbal garden. After being gathered, around half a kilogram of fresh leaves were cleaned with clean water. After being

dried in the shade the leaves were ground into a powder. This powder was utilized for additional solvent extraction after being kept in an airtight container.

### **3.1.1. Aqueous extract (made via decoction):**

For one hour, 50 grams of coarsely powdered *Jasminum auriculatum* leaves were cooked in 1000 milliliters of double-distilled water. After a day of room temperature storage, it was filtered. The first step's thick slurry was supplemented with the acquired filtrate. A thick, concentrated extract was obtained by boiling the resulting solution one more. After drying, it is utilized as a powder.

### **3.1.2. Animals:**

The antihelminthic action of adult Indian earthworms (*Pheretima posthuma*) were investigated. After being removed from the damp soil, the earthworms were cleaned with regular saline to get rid of all the excrement. For every experimental protocol, earthworms measuring 3-5 cm in length and 0.1-0.2 cm in width were employed. Earthworms can be utilized to examine the antihelminthic activity since they are morphologically and physiologically similar to human intestinal roundworm parasites.

### **3.1.3. Qualitative phytochemical analysis:**

Standard procedures were followed to examine the presence of secondary metabolites such as saponins, tannins, flavonoids, phenols, anthraquinones, steroids, glycosides and alkaloids in the powdered material and plant extract.

## **TESTS FOR ALKALOIDS:**

**Hagers Test:** To check for alkaloids, carefully combine 1 milliliter of extract with 3 drops of recently made Hagers reagent in a test tube. An encouraging outcome and the presence of alkaloids in the extract were indicated by the production of yellow precipitates.

**Wagner's Test:** One milliliter of extract and three drops of previously prepared Wagner's reagent were combined in a test tube. The presence of alkaloid was indicated by the production of brown precipitate.

**Dragendraffs test:** A test tube containing 2 milliliters of extract, 0.2 milliliters of diluted HCL, and 1 milliliter of dragendraffs reagent was filled and left for a few minutes. The appearance of an orange-brown precipitate indicates a successful outcome

**Salkowaskis test:** 0.5g of extracts was dissolved in 2ml of chloroform in a test tube to detect steroidal chemicals. A coating of concentrated sulfuric acid was carefully applied to the test tube walls. The presence of a steroid ring was revealed by the interface's reddish-brown tint.

### **Test for phenolic substances:**

A solution containing 1% ferric chloride, 1% potassium chloride, and 1% potassium ferrocyanide was combined in equal parts. Three drops of this recently made mixture were

added to two milliliters of extract. The development of a bluish-green hue was interpreted favorably.

**Test for flavonoids:** This test was done to find out the presence of flavonoids in by reacting it with 2ml NaOH which was inspected for the yellow color production for positive result.

**Test for tannins:** To determine whether tannins were present, 5 milliliters of extract were mixed with 1% lead acetate. Positive results are shown by a yellow precipitate. A tiny yellow precipitation for aqueous extracts indicated a very favorable outcome.

### 3.1.4. Antihelminthic activity:

Antihelminthic activity consist of total 5 groups are as follows:

Group 1 (normal control) : normal saline

Group 2 (standard treated): albendazole (10mg/ml)

Group 3 (*jasminum auriculatum* aqueous extract dose-1): (50mg/ml) concentrations of *jasminum auriculatum* aqueous extract.

Group 4 (*jasminum auriculatum* aqueous extract dose-2): (100mg/ml) concentration of *jasminum auriculatum* aqueous extract.

Group 5 (*jasminum auriculatum* aqueous extract dose-3): (150mg/ml) concentration of *jasminum auriculatum* aqueous extract.

## 4. Results and Discussion:

Table 1: Preliminary phytochemical screening of the aqueous extract of *Jasminum auriculatum* leaves.

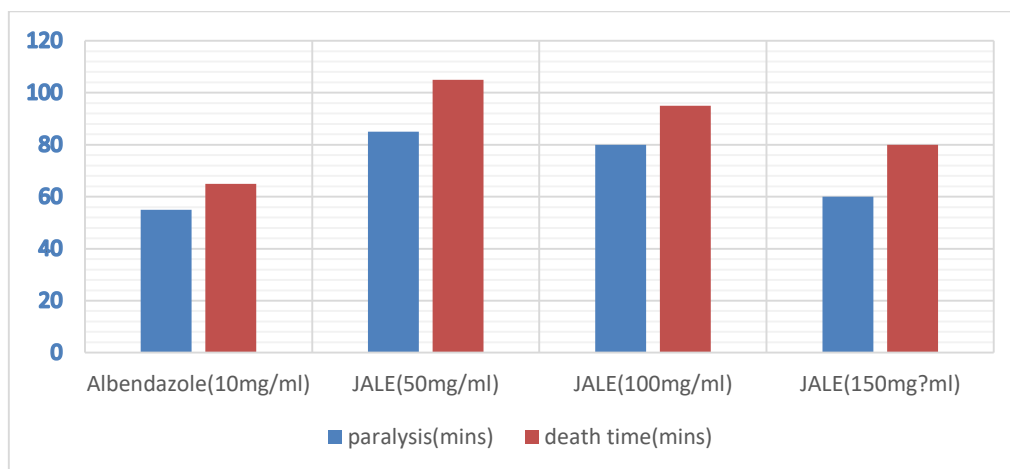
Tests	Reagents	Aqueous extract
Alkaloids	Hagers test	+
	Wagners test	+
	Dragendrafts test	+
Steroids	Chloroform and conc.H <sub>2</sub> SO <sub>4</sub>	+
Phenols	Ferric chloride and potassium ferroctanide	+
Flavanoids	Sodium hydroxide	+

Tannins	Lead acetate	+
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Table-2 Effect of aqueous extract of *Jasminum auriculatum* leaves on Indian earth worms (*Pheretima posthuma*).

Group	Treatment (Dose)	Time for paralysis of worms (mins)	Time for death of worms (mins)
(Normal control)	saline	-	-
(Standard treated)	10mg/ml of albendazole	55mins	65mins
(Dose -1)	50mg/ml of <i>Jasminum auriculatum</i>	85mins	105mins
(Dose-2)	100mg/ml of <i>Jasminum auriculatum</i>	80mins	95mins
(Dose-3)	150mg/ml of <i>Jasminum auriculatum</i>	60mins	80mins

Y-Axis



X-Axis

Bar diagram showing Antihelminthic activity.

**Discussion:**

While *Jasminum auriculatum* blooms have not been shown to have antihelminthic activity, the plant does have a variety of other properties, including antibacterial, antioxidant, and mutagenic properties. In order to achieve the antihelminthic action, we used *Jasminum auriculatum*'s aqueous extract, and the phytochemical screening tests produced positive findings.

In order to compare the antihelminthic activity of the aqueous extract of *Jasminum auriculatum* with the usual medication albendazole, several dosages of the drug were taken. A total of five groups were used to conduct the antihelminthic activity on *pheretima posthuma* of these, group five (*Jasminum auriculatum* dose-2) produced findings that were consistent with those of the conventional medication albendazole. As a result, we recorded the amount of time the worms took to paralysed and the amount of time the worms took to die. Consequently, *jasminum auriculatum* has demonstrated successful antihelminthic efficacy.

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