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A REVIEW ARTICLE ON PRELIMANARY SCREENING & PHARMACOLOGICAL ACTIVITIES OF JAMUN (SYZYGIUM CUMINI)

KEY WORDS: Jamun, Prelimanary phytochemical screening , Traditional uses .

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ABSTRACT

Medicinal plants has assumed greater importance in the recent days .The Syzygium Cumini (Jamun) is an evergreen tropical tree in the flowering plant family (myrtaceae) . It is widely used as folk medicine to treat many biological or pharmacological activities including antidiabetic , antioxidant, antifungal, anti inflammatory , CNS depressant ,antitumor ,anti cancer activites and so on .This study was intended to evaluvate the antimicrobial and anti-inflammatory activity of jamun (syzygium cumini) seed . we have investigated the preliminary screening of Jamun (syzygium cumini) which showed the presence of steroids , phenols , flavonoids and so on . The ethyl acetate extract of syzygium cumini seed has showed the anti-microbial and anti-inflammatory .we have also concluded that methanol extract of jamun seed have potent antioxidant activity and anti-inflammatory activity ,which provide a base for further clinical trails .

INTODUCTION:

Natural product is a source for bioactive compounds and has potential for developing some new therapeutic agent and have great importance in modern days for the treatment of various ailments. Many researches has found on the basis of the beneficial, pharmacological and medicinal properties of herbal drug Syzygium cumini (jamun) is a roadside plant [1].

Syzygium cumini (Jamun) is an evergreen tropical tree in the flowering plant family and is also known as Naval pazham in Tamil nadu and Jamun, Jambool in India. It is an evergreen tree up to 25 m high and throughout distributed in India , Malaya , Australia and Ceylon [2]. This plant is also known as jamun, black plum, malabal plum, punat plum, java plum, portugueses plum . Jamun plant is used in the treatment and prevention of asthma, sore throat, bronchitis, thirst, ulcers, biliousness [3]. Syzygium cumini (jamun) stem bark contains betulinic acid. β-sitosterol, ellagic acid etc . In various studies, researchers have evaluated the pharmacological properties which proven to posses, antimicrobial , anti HIV activity, gastroprotective, central nervous system activity, and anti-diabetic effects[4]. Jamun (*Syzygium cumini*) height of the plant is up to 6 to 25 meters. Leaves of the plant are oblong- ovate and 7 to 14 cm long leaves, crushed leaves give a light smell and flowers are pink or white in colour. This plant fruit contains single long seed, dark purple in color [5] . There are various vernacular names of jamun (*Syzygium cumini*) are mentioned in table 1 [6].

Table 1: various vernacular names in different languages

	Languages	Vernacular names
1 .	Bengali	Badjam, Kalajam
2 .	Gujrati	Gambu, Jamun
3 .	Hindi	Jamuna
4 .	English	Jambul tree
5 .	Kannada	Nerale Beeja , Jambu Nerale
6 .	Urdu	Jamun
7	Malayalam	Njaval
8 .	Oriya	Jam Kol, Jamu Kol
9	Tamil	Naval
10	Telugu	Alla Nereduchettu, Neredu chettu

Parts used of Jamun plant – Leaves, bark, seed and fruit [6]

Fig 1: Syzygium cumini (jamun)

Phytochemical Screening

Phytochemical screening of jamun plant extracts contain vitamin C, gallic acid, steroids, terpenoids, amino acids etc. The leaves and bark of the plants have also shown the presence of steroids, proteins, phenols, tannins, alkaloids [7]

Flavonoids

To 0.5ml of alcoholic extract of the samples, add 5 to 10 drops of diluted HCl and small amount of Zn or Mg and the resulting solution is boiled for few minutes. Appearance of reddish pink or dirty brown color indicates the presence of flavonoids [7].

Phenols

To 1ml of alcoholic solution of sample, add 2ml of distilled water followed by a few drops of 10% aqueous ferric chloride solution. Formation of blue or green colour indicates the presence of phenols [7].

Tannins

To 5ml of an aqueous extract, add a few drops of 1% solution of lead acetate. Formation of a yellow or red precipitate indicates the presence of tannins [7].

Alkaloids

1.36gm of mercuric chloride dissolved in 60ml and 5gm of potassium iodide are dissolved in 10 ml of distilled water respectively. These two solvents were mixed and diluted to 100ml using distilled water to make a reagent. To 1ml of acidic aqueous solution of samples, add few drops of above reagent. Formation of white or pale precipitate shows the presence of alkaloids [7].

Steroids

About 100 mg of dried plant extract is dissolved in 2ml of chloroform. Add sulphuric acid carefully to form a lower layer. A reddish brown colour at the interface is an indicative of the presence of steroidal ring [7].

Glycosides

A small amount of alcoholic extract of sample is dissolved in 1ml water and then aqueous sodium hydroxide is also added. Formation of a yellow colour indicates the presence of glycosides [7].

Saponins

A drop of sodium bicarbonate is added in a test tube containing about 50ml of an aqueous extract of sample. The mixture is shaken vigorously and kept for 3min. A honey comb like froth shows the presence of saponins [7].

Terpenoid

2ml of chloroform and 1ml of conc. H_2SO_4 are added to 1mg of plant extract. Formation of reddish brown color indicates the presence of terpenoid [7].

Resins

To 2ml of chloroform or ethanolic extract, add 5 to 10ml of acetic anhydrite and dissolve the mixture by gentle heating. After cooling the mixture, 0.5ml of H_2SO_4 is added. Formation of bright purple color indicates the presence of resins [7].

Pharmacological activities

Various researches have founded that Jamun plant has anti - bacterial, anti-cancer, anti-diabetic , anti-fungal , anti-inflammatory , anti-oxidant , antiviral and diuretic properties.

- Anti-bacterial activity of *Syzygium cumini* is found in stem, leaves and fruit extract which found to be very effective against all the bacterial strains . The best results were studied against Roultella plantikola [8].
- Anti-diabetic activity of syzygium cumini is studied in numerous investigations performed in the past have indicated that syzygium cumini seeds [9] , fruit [10] , leaves [11] and flowers [12] possess anti diabetic activity .
- Anti-fungal activity of syzygium cumini is investigated in different concentration of alcohol , n- hexane , and aqueous extracts of various parts of jamun plant (leaves , fruits, stem bark) to study their antifungal activity against Ascochyta rabieie – the causative agent for blight disease of cicer arietinum [13].
- Anti-inflammatory activity is showed in the extract ethyl – acetate and methanolic extract of syzygium cumini seed , leaves and stem bark which showed anti- inflammatory activity in carrageenam induced paw oedema in wistar rats [14] , [15].
- Diuretic property of syzygium cumini is showed in the extract of chloroform , methanolic and aqueous extracts which were evaluated for its diuretic activity in Wistar albino rats at the dose of 500 mg / kg body weight [16].

Medicinal Properties

Bark of syzygium cumini is sweet, digestive and astringent to the bowels, and also used for the treatment and prevention of sore throat , asthma , biliousness and ulcers [17] Jamun is a good blood purifier. Jamun fruit is acrid , sweet and astringent to the bowels , fruit has been used very long for various medicinal purposes and also for the treatment of chronic diarrhea . Seeds are sweet and astringent to the bowels and also good for diabetes [18] , [19].

The extract of jamun seed is used to treat cold, cough, fever and skin problems like rashes and throat, intestines and GIT ulcers . Jamun fruit can be eaten raw . Better quality jamun juice is perfect for syrup and also for an Indian drink [20].

Traditional uses -

Over the all parts of India the jamun used as medicinally and long tradition in subsitute medicine. All over the world, fruits used for a variety of ailments, such as cough, diabetes, inflammation and ringworm . S .cumini is also an ancient medicinal plant with an its medical history and widely distributed throughout India as folk medicine for the treatment of diabetes mellitus [6].

Conclusion

In present article we studied on the Prelimanary Screening & pharmacological activities of Jamun(syzygium cumini) . Different parts of the plant and their extracts have been used for various pharmacological actions, but there are less clinical trials have been carried out. Jamun is a very useful drug as anti-bacterial, anti-fungal, anti-viral, anti-cancer, anti-hyperlipidemic, hepatoprotective, cardioprotective, gastroprotective .Thus, besides studies also to be performed with respect to its isolated constituents, its clinical studies .

The photochemical screening showed the presence of antibacterial activities with ethyl acetate extract of seed of S . cumini

we have also concluded that methanol extract of jamun seed have potent antioxidant activity and anti-inflammatory activity ,which provide a base for further clinical trails .

Collision of interest

There are no collision of interest

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