**DETECTION OF PHYTOCHEMICALS IN JAMUN (SYZYGIUM CUMINI L.) PULP POWDER**

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Detection of Phytochemical in Jamun (*Syzygium Cumini*) Pulp Powder was carried out on the crude methanol and ethanol extracts of Jamun pulp powder dried at various temperatures 60°C, 70°C, 80°C and control as raw pulp. Preliminary Phytochemical studies revealed the presence of flavonoids, alkaloids, amino acids, glycosides, steroids, triterpenoids, reducing sugar and tannins and the absence of saponins, anthroquinoes as the chemical class present in the extracts. In this study we found that most of the biologically active phytochemicals were present in all the jamun pulp powder which dried at three different temperatures, when subjected to both methanol and ethanol extract. This study will definitely be helpful to produce jamun pulp powder at control temperature without loss of phytochemicals. Further to produce jamun pulp powder incorporated food products.

**MATERIALS AND METHODS**

**Plant Materials:** Jamun fruits were obtained from the farmer of Parbhani district. The fruits were sorted by its maturity and the fully rippled fruits were washed in normal tap water further packed in PE and kept in deep freezer.

**Drying condition:** The stored Jamun fruits were taken from the deep freezer and kept at room temperature to reach its normal state. Jamun fruit was blanched and pulp was extracted manually by separating the seed. Approximately 1000g of pulp was taken for drying and the pulp was dried with the help of Cabinet Tray drier at temperature varied from 60°C, 70°C and 80°C. The drying process was performed in triplicate for each drying temperature.

**Preparation of sample extracts**

**Solvent extraction:** Dried sample extract was prepared by Soxhlet extraction method. About 20gm of powdered plant material was uniformly packed into a thimble and extracted with 250ml of different solvents separately. Solvents used were methanol and ethanol. The process of extraction continues for 24 hours. After that the extract was taken in a beaker and kept on hot plate and heated at 30-40ºC till all the solvent get evaporated. Dried extract was kept in refrigerator at 4ºC for their future use in phytochemical analysis.

**Preliminary Phytochemical screening:** One gram of the methanol and ethanol extract of *Syzygium cumini* pulp was dissolved in 100ml of its solvents to obtain a stock of concentration 1% (v/v). The extract thus obtained was subjected to phytochemical screening.

**Screening procedure:**

**Test for Alkaloids:** Five ml of the extract was added to 2ml of NAAS Rating (2015)-4.20
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Table-1. Phytochemical screening results in both methanol and ethanol extract.

<table>
<thead>
<tr>
<th>Phytochemical</th>
<th>Control</th>
<th>Methanol 60°C</th>
<th>70°C</th>
<th>80°C</th>
<th>Ethanol 60°C</th>
<th>70°C</th>
<th>80°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaloids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Amino Acids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Reducing sugar Test</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Flavonoids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Saponins</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Steroids</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Glycosides</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Anthraquinones</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Triterpenoids</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
</tr>
<tr>
<td>Tannins</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
</tr>
</tbody>
</table>

HCL. To this acidic medium, 1 ml of Dragendorf’s reagent was added. An orange or red precipitate produced immediately indicated the presence of alkaloids.

Test for amino acids: One ml of the extract was treated with few drops of Ninhydrin reagents. Appearance of purple colour showed the presence of amino acid.

Test for Reducing sugar Test: Equal volume of Fehling A and Fehling B reagents were mixed together and 2 ml of it was added to crude extract and gently boiled. A brick red precipitate appeared at the bottom of the test tube indicated the presence of reducing sugars.

Test for Flavonoids: Extract of about 0.2 g was dissolved in diluted NaOH and HCl was added. A yellow solution that turned colourless indicated the presence of flavonoids.

Test of Saponins: The extract was diluted with 20 ml of distilled water and it is agitated in a granulated cylinder for 15 min. the formation of 1 cm layer of foam showed the presence of saponins.

Test for Steroids: One ml of extract was dissolved in 10 ml of chloroform and equal volume of concentrated sulphuric acid was added by sides of the test tubes. The upper layer turned red and sulphuric acid layer showed yellow with green fluorescence. This indicated the presence of steroids.

Test for Tannins: Crude extract was mixed with 2 ml of 2% solution of FeCl₃. A blue-green or black coloration indicated the presence of phenols and tannins.

Test for Triterpenoids: Ten mg of the extract was dissolved in 1 ml chloroform; 1 ml of acetic anhydride was added following the addition of 2 ml of con, sulphuric acid. Formation of reddish violet colour indicated the presence of triterpenoids.

Test for Glycosides: The extract was hydrolyzed with HCl solution neutralized with NaOH solution. A few drops of Fehling’s solution A and B were added. Red precipitate in indicated the presence of glycosides.

Test for Anthraquinones: Five ml of extract solution was hydrolyzed with diluted con sulphuric acid, extracted with benzene. 1 ml of dilute ammonia was added to it, rose pink colour suggested the positive response for anthraquinones.

RESULT AND DISCUSSION

The detection of photochemical were performed with ethanol and methanol extract of Jamun pulp powder. Jamun pulp was rich in flavonoids, alkaloids amino acids, glycosides, steroids, triterpenoids, reducing sugar and tannins and the absence of saponins and anthraquinones. From this study we conclude that most of the phytochemicals were present in both methanol and ethanol extract of pulp power. Since there is no degradation in phytochemical as the temperature increases, it is found that cabinet tray dryer with temperature range from 60°C to 80°C is suitable to dry Jamun pulp. These dried pulp powder can be used further for any food product development.

CONCLUSION

In the study, we found that most of the Phytochemicals were
present in raw Jamun pulp were also found in Jamun pulp powder dried at (80°C) which was subjected to ethanol and methanol extract. The anti diabetic and analgesic activities properties of *Syzygium cumini* pulp extract may be due to presence of above mentioned phytochemicals.

REFERENCES