Research Article

QUALITATIVE PHYTOCHEMICAL ANALYSIS OF PAPAYASAYANAM EXTRACT OF Carica papaya STRAW

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Abstract

Medicinal plant extracts contain various types of bioactive compounds known as phytochemicals. Traditional medicine can be used in treatment as anticancer, antimicrobial, antioxidant, anti-inflammatory agents. Phytomedicine is the entire quantity of acquaintance, skills and performances based on the theories, attitudes and experiences original to different culture that are used to maintain wellbeing as well as to treat, prevent and diagnose improve physical and mental illnesses. They are following objectives to assess the Qualitative phytochemical analysis of Papayasayanam extract of Carica papaya straw. The results showed that the Qualitative phytochemical analysis of Carica papaya straw presence of alkaloids, flavonoids, phenols, tannins, saponins, carbohydrates, glycosides, steroids, terpenoids, fixed oils, fats and protein were respectively. All these Qualitative phytochemical analysis reports warrant an in depth analysis of the usefulness of papayasayanam extract of Carica papaya straw as miracle drug against various ailments.

Article History

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1. Introduction

Phytochemicals are beneficial to boost up immunolatory responses and also provide immunity against many diseases. Preliminary phytochemical analysis revealed that the medicinal and physiological activities which are phenols, tannins, flavonoids, saponins, carbohydrates, alkaloids and phytosterols. Medicinal plants are very good sources of drugs for traditional systems of medicine. Indian medicinal plants have lot of potential towards curing many diseases (Sheraz Khalid et al., 2018).

World Health Organization showed more than 80 % of the world’s population relies on traditional medicine for their primary healthcare needs. Traditional medicines used contain a wide range of ingredients that can be used to treat chronic as well as infectious diseases. The homeopathic value of plants lies in some chemical substances that produce a definite physiological action on the human body. The vital of these bioactive compounds of plants are alkaloids, flavonoids, tannins and phenolic compounds. Traditional healers claim that their medicine is cheaper, more effective and impart least side effects as compared to synthetic medicines (Sudha Babel et al., 2018).

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Phytomedicine are synthesized in all parts of the plant body possibly will contain energetic components bark, leaves, stem, root, flower, fruits and seed any division of the plant body may include active components the quantity and quality of phytochemical there in plant parts may be at variance from one part to another. In fact, there will be short of information on the sharing of the biological movement in different plant parts fundamentally related to the difference in allotment of energetic compounds (Jayakumar et al., 2018).

Carica papaya belongs to Caricaceae family it is also called as pawpaw with potential medicinal values and has been cultivated in most of the tropical countries. Carica papaya is a huge tree like herbaceous perennial plant with soft single stem growing up to 5 – 10 m height, with sparsely arranged leaves at the top of the trunk, lower trunk is scarred where leaves and fruits are born. The plants are usually short-lived, but can produce fruits for more than 20 years. Carica papaya is leaves, fruits, seeds, peel, roots and flowers. Papaya is a berry fruit type with parietal placentation, it is well known for its food and nutritional values. It is also called as “fruit of a common man”, known as popular fruit Carica papaya Plant grows rapidly and have weak and soft stem which yields latex and have large and long stalked leaves (Anitha et al., 2018). To assess the Qualitative phytochemical analysis of papayasayanam extract of Carica papaya straw.

2. Materials and Methods
Collection of Plant Material
Carica papaya straws were collected Tirupattur, Vellore district, Tamil Nadu. The collected straws were washed thoroughly in tap water, shade dried and finely powdered.

Preparation of plant extract
Hundred grams of papaya straw dried in shade for 30 minutes and fried in required quantity. Then, it was ground kalvam to get the fibre free confection of 50 grams of cheerakam fruit of C. cyminum is cleaned, fired and then pound in to the fine powder and then it is added to the above said papaya confection and scrapped mixed with the above said confection and minced well for 2 hours in order to get the fiber free formulation namely papayasayanam.

Qualitative Phytochemical Analysis
The papayasayanam extract of Carica papaya straws were assessed for the existence of the phytochemical analysis by using the following standard methods.

Test for Anthraquinones (Iyengar, 1995)
Ten ml of benzene was added in 6 g of papayasayanam extract of Carica papaya straw in a conical flask and soaked for 10 minutes and then filtered. Further 10 ml of 10 % ammonia solution was added to the filtrate and shaken vigorously for 30 seconds and pink, violet or red color indicated the presence of anthraquinones in the ammonia phase.

Test for Tannins (Iyengar, 1995)
Ten ml of bromine water was added to the 0.5 g papayasayanam extract of Carica papaya straw. Decoloration of bromine water showed the presence of tannins.

Test for Saponins (Iyengar, 1995)
Five ml of distilled water was mixed with papayasayanam extract of Carica papaya straw in a test tube and it was mixed vigorously. The frothing was mixed with few drops of olive oil and mixed vigorously and the foam appearance showed the presence of saponins.

Tests for Flavonoids (Iyengar, 1995)

Shinoda Test
Pieces of magnesium ribbon and Hcl concentrated were mixed with papayasayanam extract of Carica papaya straw after few minutes and pink color showed the presence of flavonoid.

Alkaline Reagent Test
Two ml of 2 % NaOH mixture was mixed with papayasayanam extract of Carica papaya straw concentrated yellow color was produced, which became colorless when we added 2 drops of diluted acid to mixture. This result showed the presence of flavonoids.
Tests for Glycosides (Iyengar, 1995)

Liebermann’s Test
Two ml of acetic acid was added with 2 ml of chloroform with papayasayanam extract of Carica papaya straw. The mixture was then cooled and we added H₂SO₄ concentrated. Green color showed the entity of aglycone, steroidal part of glycosides.

Keller-Kiliani Test
A solution of glacial acetic acid (4 ml) with 1 drop of 2.0 % FeCl₃ mixture was mixed with the 10 ml papayasayanam extract of Carica papaya straw and 1 ml H₂SO₄ concentrated. A brown ring formed between the layers which showed the entity of cardiac steroidal glycosides.

Salkowski’s Test
Two ml of concentrated H₂SO₄ was added to the papayasayanam extract of Carica papaya straw. A reddish brown color formed which indicated the presence of steroidal aglycone part of the glycoside.

Test for Terpenoids (Siddiqui and Ali, 1997)
Two ml of chloroform was added with the 5 ml papayasayanam extract of Carica papaya straw and evaporated on the water path and then boiled with 3 ml of H₂SO₄ concentrated. A grey color formed which showed the entity of terpenoids.

Test for Steroids (Siddiqui and Ali, 1997)
Two ml of chloroform and concentrated H₂SO₄ were added with the 5 ml papayasayanam extract of Carica papaya straw. In the lower chloroform layer red color appeared that indicated the presence of steroids.

Test for Alkaloids (Raaman, 2006)
The solvent free papayasayanam extract of Carica papaya straw (50 mg) was stirred with one ml of dilute hydrochloric acid and filtered. The filtrate was tested for alkaloids.

Mayer’s Test
To the filtrate, a drop of Mayer’s reagent was added along the sides of the test tube. A white precipitate indicates the test as positive.

Carbohydrates (Iyengar, 1995)
To 0.5 ml of the papayasayanam extract of Carica papaya straw, 1 ml of water and 5 - 8 drops of Fehling’s solution was added at hot and observed for brick red precipitate.

3. Results and Discussion

Qualitative Phytochemical analysis of Papayasayanam extract of Carica papaya straw
The Qualitative phytochemical analysis of Carica papaya straw showed alkaloids, flavonoids, phenols, tannins, saponins, carbohydrates, glycosides, steroids, terpenoids, fixed oils, fats and protein. The Table - 1 showed that the qualitative phytochemical analysis of papayasayanam extract of Carica papaya straw.

Table – 1: Qualitative phytochemical analysis of papayasayanam extract of Carica papaya straw

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Phytochemical Constituents</th>
<th>Papayasayanam extract of Carica papaya straw</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alkaloids</td>
<td>Present</td>
</tr>
<tr>
<td>2</td>
<td>Flavonoids</td>
<td>Present</td>
</tr>
<tr>
<td>3</td>
<td>Phenols</td>
<td>Absent</td>
</tr>
<tr>
<td>4</td>
<td>Tannins</td>
<td>Absent</td>
</tr>
<tr>
<td>5</td>
<td>Saponins</td>
<td>Absent</td>
</tr>
<tr>
<td>6</td>
<td>Carbohydrates</td>
<td>Present</td>
</tr>
<tr>
<td>7</td>
<td>Glycosides</td>
<td>Present</td>
</tr>
<tr>
<td>8</td>
<td>Steroids</td>
<td>Present</td>
</tr>
<tr>
<td>9</td>
<td>Terpenoids</td>
<td>Present</td>
</tr>
<tr>
<td>10</td>
<td>Protein</td>
<td>Present</td>
</tr>
</tbody>
</table>

Selvakumar et al. (2018) reported that the preliminary phytochemical screening of poly herbal formulation nallamarunthu showed the presence of phytochemical constituents such as alkaloids, flavonoids, steroids, tannins and cardiac glycosides. The qualitative phytochemical analysis of Ctenole pisgarcini showed the presence of fourteen different types of secondary metabolites such as anthrocyanin, alkaloids, steroids, tannins, saponins, flavonoids, quinones, glycosides, cardiac glycoside, terpenoids, phenols,
anthroquinone, phlobatannins and coumarins were reported in the various extracts including methanol, chloroform and benzene (John Peter Paul and Sakunthala, 2018).

4. Conclusion

In this present study, it can be concluded that the papayasayanam extract of *Carica papaya* straw showed various qualitative and quantitative phytochemical analysis are alkaloids, flavonoids, carbohydrates, glycosides, saponins, tannins, terpenoids, steroids, phytosterols, protein, ash, moisture, fixed oils and fats.

5. References