QUALITATIVE ANALYSIS OF PHYTOCHEMICALS AND ANTIBACTERIAL SCREENING OF EXTRACTS OF *CARICA PAPAYA* FRUITS AND SEEDS

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Abstract

The study evaluated the qualitative analysis of phytochemical and antimicrobial activity of various solvent extracts from Carica papaya fruits and seeds. Phytochemical screening indicated the presence of saponnins, alkaloids, cardiacglycoside, tannins and anthraquinnon in the extracts. The analysis shows that the unripe fruit of Carica papaya can be ranked as carbohydrate rich fruit due to its high carbohydrate and starch contents. The chemical solvents used were ethanol, chloroform and benzene. Different solvent extracts of Carica papaya were tested against Gram positive and Gram negative bacterial strains by observing the zone of inhibition. The Gram positive bacterial used in the test were *staphylococcus aureus* and *Bacillus cereus* and the Gram negative bacterial were *Escherichia coli, Pseudomonas aeruginosa*. It was observed that ethanol, chloroform and benzene extracts of Carica papaya showed activity against bacteria, the chloroform extract of Carica papaya showed stronger activity against *Escherichia coli* and *Pseudomonas aeruginosa*. The ethanol extract showed stronger activity on *Bacillus aurous* and *Escherichia coli*. Chloroform extract in bacteria showed a varying degree of inhibition to the growth of tested organism. The fruit and seed of Carica papaya of the same plant contained the same constituent and could be used for the same purpose. The result confirmed the presence of antibacterial and antifungal activity of Carica papaya extract against various human pathogenic bacteria.

INTRODUCTION

The **papaya** , **papaw** or **pawpa** is the plant ***Carica papaya***, one of the 22 accepted species in the genus *Carica* of the family Caricaceae. It was first domesticated in Mesoamerica, within modern-day southern Mexico and Central America. In 2020, India produced 43% of the world supply of papayas.

The papaya is a small, sparsely branched tree, usually with a single stem growing from 5 to 10 m (16 to 33 ft) tall, with spirally arranged leaves confined to the top of the trunk. The lower trunk is conspicuously scarred where leaves and fruit were borne. The leaves are large, 50–70 cm (20–28 in) in diameter, deeply palmately lobed, with seven lobes. All parts of the plant contain latex in articulated laticifers. Papayas are dioecious. The flowers are five-parted and highly dimorphic; the male flowers have the stamens fused to the petals. The female flowers have a superior ovary and five contorted petals loosely connected at the base. Male and female flowers are borne in the leaf axils; the male flowers are in multiflowered dichasia, and the female ones are in few-flowered dichasia. The pollen grains are elongated and approximately 35 microns in length. The flowers are sweet-scented, open at night, and wind- or insect-pollinated.

The fruit is a large berry about 15–45 cm (5.9–17.7 in) long and 10–30 cm (3.9–11.8 in) in diameter. It is ripe when it feels soft (as soft as a ripe avocado or softer), its skin has attained an amber to orange hue and along the walls of the large central cavity are attached numerous black seeds.

Taxonomical Classification:

Kingdom	:	Plantae
Clade	:	Tracheophytes
Order	:	Brassicales
Family	:	Caricaceae
Genus	:	Carica
Species	:	C. papaya
Binomial name:		Carica papaya

Papaya plants grow in three sexes: male, female, and hermaphrodite. The male produces only pollen, never fruit. The female produces small, inedible fruits unless pollinated. The hermaphrodite can self-pollinate since its flowers contain both male stamens and female ovaries. Almost all commercial papaya orchards contain only hermaphrodites.

Originally from southern Mexico (particularly Chiapas and Veracruz), Central America, northern South America, and southern Florida the papaya is now cultivated in most tropical countries. In cultivation, it grows rapidly, fruiting within 3 years. It is, however, highly frost-sensitive, limiting its production to tropical climates. Temperatures below −2 °C (29 °F) are greatly harmful if not fatal. In Florida, California, and Texas, growth is generally limited to southern parts of those states. It prefers sandy, well-drained soil, as standing water can kill the plant within 24 hours.

Two kinds of papayas are commonly grown. One has sweet, red or orange flesh, and the other has yellow flesh; in Australia, these are called "red papaya" and "yellow papaw", respectively. Either kind, picked green, is called a "green papaya".

The large-fruited, red-fleshed 'Maradol', 'Sunrise', and 'Caribbean Red' papayas often sold in U.S. markets are commonly grown in Mexico and Belize.

Papaya fruit is widely known for its taste, nutrition and health benefits but not many people are aware of the immensely beneficial Papaya seeds that are usually thrown away. These

tiny round seeds are actually edible and are good for our health if consumed in a limited quantity. They help in weight management, relieve menstrual pain and possess anti-cancer properties. They also boost our cardiovascular health and thus are considered as one of the best heart-healthy foods.

Papaya seeds are black and have a shiny, wet and slimy covering. If you remove this covering, you can feel the rough black seeds. They are slightly bitter and peppery in taste. You can consume them by drying and grinding.

Nigeria is a home of variety of fruit crops among which is Carica papaya. This popular and economically important fruits tree grows in tropical and subtropical countries of the world (Carmo. N et al., 2003), and the fruits are consumed world wide as fruit and as vegetable or used as processed products. It is becoming an important fruit internationally both as a fresh fruit and as processed products. The papaya industry in Brazil is one of the largest industries, which continues to show rapid growth (Storey.I 1969). Papaya fruits are covered with a smooth thin skin that turns to yellow or red when ripe, the flesh is succulent, varying in texture and colour ranging from yellow to orange to red (Huet B, 2006).

Carica papaya contains many biologically active compounds, two important compounds chymopapain and papain which are widely useful for digestive disorder and disturbance of the gastrointestinal tract, papaya derived papain, caricain, chymopapain and glycine endopeptids can survive acidic pH conditions and pepsin degradation (Flah A and Furrey G, 1977). However, at low pH a conformational transition that instantaneously converts their native forms into molten globuces that are quite unstable and rapidly degrade by pepsin thus, they may need to be protected against both acid denaturation and proteolysis for them to be effective in the gut after oral administration for the control of gastrointestinal nematodes.

A part from papain and chymopapain, carica papain contains many biologically actives compounds. Carica papain lipase or caplahydroloses which is tightly bound to water insoluble fraction of crude papain and is thus considered as a "naturally immobilized" biocatalyst. The papaya oil seed contains saturated fatty acid (plasmatic satiric and arachnidan) and unsaturated fatty acid oleic, linoleum, and the seed yields 660-760 carpasemine. The 106 volatile components were identified in papaya (Adeboyi A, et al., 2002). Fermentation with brew's yeast and distillation yielded alcohol (ethanol), which is externally applied to burns and scalds. The

allergies papaya fruit and latex papain were reported (Shama V C, et al., 1982). The extract from fruit showed effective anti-microbial activity against Staphylococcus aurous, Bacillus cereus, Escherichia coli and Pseudomonas shigella (Emeruwa A C 1982). The extracts of papaya seed could be used as contraceptive in rat, and papaya latex is very much useful for curing dyspepsia and is externally applied to burns and scalds (Reed C F 1976). Report also showed that phytochemical screening indicated the presence of alkaloid, cardiac glycosides anthroquinones, saponins, turning, flavorins and carbohydrates. It was discovered that Carica papaya is a natural product and belong to carica cease group. Papaya fruit and seed have anthelmintic and anti-amoebic activities, and the dried leaf infusion is taken for stomach trouble. The fruits are ingested or applied on the uterus to cause abortion (Okeniyi et al., 1979).

Recently, a study with rat at different stages of gestation showed that consumption of unripe and semi-ripe papaya fruit could be unsafe during pregnancy given the high levels of latex in the fruit at these stages of maturity. But consumption of ripe fruit during pregnancy causes no risk. Inner barks are used for sore teeth and latex is used for syphilis in psoriasis ringworm and prescribed for the removal of cancerous growth in Cuba, the flowers have been used for a hypoglycaemic (Duke J A 1978). The present study evaluated the qualitative analysis of phytochemical and antimicrobial activity of various solvent extracts from Carica papaya fruits and seeds.

Nutritional Value of Papaya Seeds:

- 100 grams of dried papaya seeds provide around 558 calories of energy. They are rich in proteins, fat and fibre.
- They also contain vitamins and minerals like iron, calcium, magnesium, phosphorus, zinc, etc.
- Papaya seeds are rich in monounsaturated fatty acids like oleic acid. They also contain polyphenols and flavonoids that are powerful antioxidants.

Health benefits of Papaya seeds are:

Powerful Antioxidant:

Papaya seeds are rich in polyphenols, flavonoids, alkaloids, tannins and saponins. They are strong antioxidants.

Antioxidants protect the body from damage by free radicals, protecting us from a variety of diseases.

Healthy Gut:

Papaya seeds are rich in fibre. They regulate our bowel movements, removing toxins from the body and thus maintaining a healthy gut. They are helpful in constipation.

Carpaine present in papaya seeds kills bacteria and parasites in our intestines and thus keep our digestive system healthy.

Helps in Weight Loss:

Papaya seeds are rich in fibre. They keep our digestion on track, thus helping in the removal of toxins from our bodies. They also help in regulating our metabolism and prevent our body from absorbing fat. This helps in preventing obesity.

Lowers Cholesterol Levels:

Papaya seeds are rich in monounsaturated fatty acids like oleic acid. These fatty acids regulate cholesterol levels by reducing bad cholesterol (LDL cholesterol). Papaya seeds are also rich in fibre. Fibre helps in reducing cholesterol levels in the body**.**

Thus, consuming papaya seeds helps in maintaining healthy cholesterol levels in our bodies.

Anti-cancer Properties:

Papaya seeds contain polyphenols that are powerful antioxidants. They prevent our body from different types of cancers. Papaya seeds also contain isothiocyanate, which inhibits the formation and development of cancer cells.

Nephroprotective

Papaya seeds protect our kidneys from damage. Consumption of papaya seeds ensures the smooth functioning of our kidneys.

Maintains Cardiovascular Health:

Papaya seeds protect our hearts. These seeds are rich in various antioxidants that protect our bodies from free radical damage.

They also help to lower blood pressure and cholesterol levels, which protects our heart from various disorders.

Reduces inflammation:

Papaya seeds are proven to be effective in reducing inflammation.

Papaya seeds are rich in vitamin C and compounds like alkaloids, flavonoids and polyphenols. All these compounds exhibit anti-inflammatory properties.

They are thus useful in preventing and reducing inflammation in diseases like gout, arthritis etc.

Good for our Skin:

Papaya seeds exhibit anti-ageing properties. They maintain the elasticity of our skin and thus prevent the development of fine lines and wrinkles.

Antibacterial:

Papaya seeds protect our body from bacteria like Staphylococcus aureus, Shigella dysenteriae, Salmonella typhi, Pseudomonas aeruginosa, Escherichia coli, etc.

Relieves Menstrual Pain:

Papaya contains carotene and this substance is essential in helping the body regulate the production of a hormone known as estrogen. While papaya seeds can help induce menstruation and also increase its frequency, they can also help to some degree in managing menstrual cramps.

Manage Liver Cirrhosis:

Papaya seeds have also been known to contain the vital nutrients necessary to help manage diseases like Liver cirrhosis. Consuming 3 to 4 papaya seeds, crushed and mixed with lime juice on a daily basis, can help in the treatment and recovery of liver cirrhosis.

Supports Dengue Treatment

Dengue is a virus transmitted by mosquitoes, it affects the platelets in your blood and begins destroying healthy platelets too. Papaya seeds have been shown to improve platelet counts in animal studies. Hence, apart from the previous health benefits of papaya seeds**,** they can be also useful as a support for your dengue recovery.

May Help With Dandruff Control

Dandruff usually has a fungal origin, particularly the Malassezia fungus. The papaya fruit and seeds have been shown to have strong antifungal properties. This may be useful when applied to the hair and scalp and reduce or prevent the development of dandruff. Use a hair pack or scrub that contains papaya seed extract to try this benefit out.

Nutrition:

Raw papaya pulp contains 88% water, 11% carbohydrates, and negligible fat and protein (table). In a 100-g amount, papaya fruit provides 43 kilocalories and is a significant source of vitamin C (75% of the Daily Value, DV) and a moderate source of folate (10% DV), but otherwise has low content of nutrients.

Phytochemicals:

Papaya skin, pulp, and seeds contain a variety of phytochemicals, including carotenoids and polyphenols, as well as benzyl isothiocyanates and benzyl glucosinates, with skin and pulp levels that increase during ripening. The carotenoids, lutein and beta-carotene, are prominent in the yellow skin, while lycopene is dominant in the red flesh. Papaya seeds also contain the cyanogenic substance prunasin.

Traditional medicine:

In traditional medicine, papaya leaves have been used as a treatment for malaria an abortifacient, a purgative, or smoked to relieve asthma.

Allergies and side effects:

Papaya releases a latex fluid when not ripe, possibly causing irritation and an allergic reaction in some people. Because the enzyme papain acts as an allergen in sensitive individuals, meat that has been tenderized with it may induce an allergic reaction.

Culinary uses:

The unripe green fruit can be eaten cooked, but not raw due to its poisonous latex content. The ripe fruit of the papaya is usually eaten raw, without skin or seeds. The black seeds of the papaya are edible and have a sharp, spicy taste

REVIEW OF LITERATURE

The antibacterial activity of aqueous, chloroform extract of leaves and aqueous, methanolic extract of seeds of Carica papaya var. pusa dwarf through agar well diffusion assay against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, E. *coli* and *Salmonella typhi*. It was revealed that the aqueous as well as the methanolic extract of seeds were effective to inhibit the bacterial pathogens while in case of chloroform extract of Carica papaya leaves did not show any inhibition against the bacteria and the aqueous leaf extract was potent to inhibit them. (**Jyotsna Kiran Peter**, *et al.*, **2014**).

Papaya (*Carica papaya* L.), one of the extensively studied plants, belongs to the family *Caricaceae*. Papaya is commonly known for its nutritional and medicinal value worldwide. Many parts of papaya plant such as roots, leaves, peels, fruits, and seeds have nutritional and therapeutic significance. The aim of this review is to consolidate the evidence-based information on papaya's functional activities, collected from online databases (Scopus, Dimensions, Google Scholar, ScienceDirect, and Web of Science) up to December 2020. A considerable literature is available detailing biomedical uses of different papaya plant parts which made papaya a treasured nutraceutical plant. Papaya plant possesses valuable phytochemicals such as phytosterols, tocopherols, flavonoids, alkaloids, and carotenoids. These compounds with interesting nutraceutical properties play key roles in ameliorating and treating some medical conditions such as inflammation, hyperglycemia, fertility-related complications, hypertension and possess anticarcinogenic activities. However, further studies are warranted to validate the dosage, mode of actions, and safety profile of papaya seeds, peels, and leaves when used as medicine. (**JoachimM** *et al.,* **2021**)

Natural drugs usage as alternative treatment has been increased in decades. This is due to the 'back to nature' life style of people and the side effect of natural drugs is relatively low. The prices of these natural drugs are cheaper as well. Papaya seed is one of the natural products with antimicrobial effect. The objectives of this research were to determine Minimum Inhibitory Concentration (MIC) of papaya seed ethanol extract to inhibit the growth of *Candida albicans* and *Vibrio cholera* and to analyze its active compounds. This research was performed using experimental design laboratory. The ethanol extract of papaya seed was obtained by maceration.

The antimicrobial assay of papaya seed ethanol extract was performed using agar plate diffusion. The MIC determination of papaya seed ethanol extract was performed by 20, 15, 10, 5 and 1% concentration. The MIC of papaya seed ethanol extract against *Candida albicans* and *Vibrio cholerae* were in 5% concentration (diameter of inhibition zone=0.75 mm) and 15% (diameter of inhibition zone =14.75 mm), respectively. The phytochemical assay of papaya seed ethanol extract showed there were alkaloids, flavonoids, steroids, polyphenols, tannins and saponins. It means that papaya seed ethanol extract has a good potential as antimicrobial therapy agent. (**Masfufatun** *et al.*, **2019**)

MATERIALS AND METHODS

Extraction of Papaya Fruit and Seeds:

Fresh ripe fruit of Carica papaya was obtained from Local area.

The Carica papaya fruit collected were peeled, seed removed and pulp cut into pieces, sun dried for about two weeks and there after transferred to chemistry laboratory, and dried under oven at 55 oC for two days. The dried substance was pounded into powdered form and properly stored in sealed sterilized polythene for extraction and phytochemical analysis. The 50 mg of each sample was extracted in 200 mL, 250 mL and 300 mL respectively of ethanol, chloroform and benzene by maceration for 60 h. The crude extract was decanted, filtered and concentrated using rotary evaporator until all the solvent was completely evacuated. The solid extract was stored in glass vials in a refrigerator for next experiments.

The phytochemical screening was carried out to determine the biological active, non-nutritive compound that contributed to the flavour, colour and other characteristics of plants such as alkaloids, tannin cardiac glycoside, saponins, flavorins among others.

Determination of Alkaloids Procedure:

0.5 g of the sample was accurately weighed and defatted with 5% ethyl ether for 15 min. The defatted sample was extracted for 20 min with 5.0 mL of aqueous HCl on a steam. The resulting mixture was centrifuged and treated with a few drops of Mayer's reagent and the second 1.0 mL portion was treated similarly with dragnet. The result was recorded.

Determination of Tannins:

Procedure: 0.5 g of dried extract was stirred with 10.0 mL of distilled water. This was filtered and ferric chloride (FeCl3) solution was added to the filtrate and the result was recorded.

Determination of Saponins Procedure:

0.5 g of dried extract was shaken with water in a test tube and warmed. The result was recorded.

Determination of Anthraquinnone Procedures:

0.5 g of dried extract was shaken with 10.0 mL of benzene. This was filtered and 5.0 mL of 10% ammonia solution was added to the filtrate and shaken. The result was recorded.

Determination of Cardiac Glycosides Procedure:

0.5 g of dried extract was dissolved in 2.0 mL of glacial acetic acid containing one drop of ferric chloride solution. This was then under laid with 1.0 mL of concentrated H2SO4 acid and the result was recorded.

Determination of Flavorins Procedure:

1.0 mL of 10% ethanolic extract of Carica papaya was mixed with 0.5 mL of hydrochloric acid and magnesium metal and the result recorded.

Determination of Carbohydrates Procedure:

0.5 mL of the extracts was heated on warmed water, iodine solution was added and the result recorded.

RESULTS AND DISCUSSION

Tables 1 and 2 represent the results of the phytochemical analysis of Carica papaya fruits and seeds while Tables 3 and 4 represent the results of phytomicrobial screening of seed and fruit of papaya.

Phytochemical screening indicated the presence of saponnins, alkaloids, cardiacglycoside, tannins and anthraquinnon in the extracts of Carica papaya fruits and seeds. The analysis shows that the unripe fruit of Carica papaya can be ranked as carbohydrate rich fruit due to its high carbohydrate and starch contents. Furthermore, the moisture contents are also low, showing that the unripe pulp can be stored for a period of time without spoilage and it will not be susceptible to microbial growth.

Table 1. Qualitative screening of Carica papaya fruits

S.no	Test	Observation	Inference
1	Sample + 10.0 mL of distilled water + few drop of ferric chloride ($FeCl_3$) aq	A blue-black precipitate	Tannins present
2	Sample + H_2O + heat	Persistence frothing was observed.	Saponins present
3	Sample + 5.0 mL of HCl (aq) + few drops of Mayer's reagent	A turbid precipitation was formed.	Alkaloids present
4	Sample + glacial acetic acid + few drops of $FeCl_3$ (aq) + 1.0 mL of conc. H_2S0_4	A brown ring formed the interface of the test tube.	Cardiac glycoside present
5	Sample + 10.0 mL of benzene +10% of ammonia solution + shaken	A violet colour was formed	Anthraquinnone present
6	Sample + warm water + iodine solution	A blue black colour was formed	Carbohydrate present
7	Sample + 1.0 mL of 10% ethanol + 0.5 mL of HCL	A reddish colour was formed	Carbohydrate present

Protein contents were not determined in this study to confirm whether the unripe pulp of Carica papaya fruits and seed are good sources of protein or not. The concentration of mineral

elements would have an advantage, if determined to seek if they can play important roles in the maintenance of normal glucose tolerance and in the release of insulin from better cell or not. These mineral may not be present in a detectable amount in the pulp and could be of great advantage to the consumers. The secondary plant metabolites are bioactive compounds, for example saponins and cardiac glycoside are important medicines to health status.

Glycoside is known to be used in the treatment of congestive heart failure. Also saponins inhibits the blockage of the entrance of Na+ concentration in cell activating, strengthens the contraction of heart muscle and thereby reducing congestive heart failure.

Pulp of Carica papaya contributed to the presence of bioactive compound like glycoside, mineral salts and polysaccharide. These compounds have been shown to be responsible for hypoglycemic activity in Mormerdica charantia. Bitter mellon is English name of Mormerdica charantia which promote health and wellness with the herb, bitter lemon by miller food/cooking.

Table 2. Qualitative screening of Carica papaya seed extracts

S.no	Test	Observation	Inference
1	Sample + 10.0 mL of distilled water + few drop of ferric chloride ($Fecl_3$) aq	A blue-black precipitate	Tannins present
2	Sample + H_2O + heat	Persistence frothing was observed	Saponins present
3	Sample + 5.0 mL of HCl (aq) + few drops of Mayer's reagent	A turbid precipitation was formed	Alkaloids present
4	Sample + glacial acetic acid + few drops of $FeCl_3$ (aq) + 1.0 mL of cenc. H_2S0_4	A brown ring formed the interface of the test tube.	Cardiac glycoside present
5	Sample + 10.0 mL of benzene +10% of ammonia solution + shaken	A violet colour was formed	Anthraquinone present
6	Sample + 1.0 mL of 10% ethanol +0.5 mL of HCl	A reddish colour was formed	Flavorins present
7	Sample + iodine solution	A blue black colour was formed	Carbohydrate present

Table 3. Phytomicrobial screening of the fruit extracts

	Test Performed	Ethanol Extract	Chloroform Extract	Benzene Extract
Saponins	Chloroform and H_2SO_4	+	_	_
Flavorins	Shinoda test	+	_	_
Alkaloids	Dragendoff's test	+	+	_
Carbohydrate	Molish test	+	_	_
Cardiac glycosides	Molish test	+	_	_
Tannins	Natural $FeCl_3$	_	+	_
Anthraquinnon	Ferric chloride	+	+	_

Note: (+) = positive result while (-) = negative result

The result of the antibacterial activity shows that all the extracts have an antibacterial activity equivalent to that of standard against the entire tested phytochemical ethanol, chloroform and benzene extracts (Tables 5 & 6).

Table 4. Phytomicrobial screening of the seed extracts

	Test Performed	Ethanol Extract	Chloroform Extract	Benzene Extract
Saponins	Chloroform and H_2SO_4	+	_	_
Flovorins	Shinoda test	+	_	_
Alkaloids	Dragendoff's	+	+	_
Carbohydrate	Molish test	+	_	_
Cardiac glycosides	Molish test	+	_	_
Tannis	Natural $FeCl_3$	_	+	_
Anthraquinnon	Ferric chloride	+	+	_

Note: (+) = positive (-) = negative results

Table 5. Phytomicrobial screening of antibacterial activity of Carica papya fruit extract against different organisms

Organism	Ethanol	Chloroform	Benzene
Escherichia coli	++	+++	_
Staphylococcus cereus	+	+	_
Bacillus cereus	+++	_	_
Pseudomonas aeruginosa	+	++	_

Note: (+++) = most reactive, (++) = more reactive and (+) = reactive

Table 6. Phytomicrobial screening of antibacterial activity of Carica papya seed extract against different organisms

Organism	Ethanol	Chloroform	Benzene
Escherichia coli	++	+++	_
Staphylococcus cereus	+	+	_
Bacillus cereus	+++	_	_
Pseudomonas aeruginosa	+	++	_

Note: (+++) = most reactive, (++) = more reactive and (+) = reactive

Chloroform extract have shown better activity against Bacillus cereus and benzene extract has no effective against the bacterial. The therapeutic value of medical plants lies in the various chemical constituent in it. The bioactivity of a plant is attributed to phytochemical constituent for instance plant rich in tannin's have antibacterial potentials due to their character that allow them to react with proteins to form stable water soluble compounds, thereby killing the bacteria by directly damaging it's cell membrane (**Ayo R G, 2010**). Flavouriods are major group of phenolic compound reported for the antiviral, antibacterial and spasmolytic properties

(**Elimalia E** *et al.*, **1984**). Alkaloids isolated from plant have antimicrobial properties (**Jose** *et al.*, **2005**). The presence of saponins supports the fact that Carica papaya fruit extracts have cytotoxic effect such as permealization of the intestine as saponins are cytotoxic (**Okigbo R N** *et al.*, **2009**). Saponins have relation with sex hormone involved in controlling the release of milk (**Ayoola and Adeyeye 2010**). Another important action of saponins is their expectorant action through the stimulation of the upper digestive tract (**Nijoku and Akumefula 2007**).

Alkaloids are the most efficient therapeutically significant plant substance. Pure isolated alkaloid and the synthetic derivative are used as basic medical agent because of their analgesic, and antispasmodic and bacteria properties, which show markedly psychological effect when were administered to animals. The presence of alkaloids in the fruit and seed show that this plants is effective to malaria, since alkaloid consists of quinine which is anti-malaria. The cardiac glycosides therapeutically have the ability to increase the force and power of hearth beat without increasing the amount of oxygen needed by the heart muscles.

CONCLUSIONS

The extracts of Carica Papaya fruits and seeds have great medicinal and nutrient values which could be used for treating many ailments and maintenance of the body

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