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Review article

A comprehensive review: exploring the anti-arthritic anti-inflammatory potential of *Annona squamosa* (custard apple) leaves

Jeevan Ankush Gawade*, G S Gore, R R Bendgude

Shri Ganpati Institute of Pharmaceutical Sciences and Research, Tembhurni, Maharashtra, India

Corresponding author: Jeevan Ankush Gawade, ✉ jeevangawade2005@gmail.com, **Orcid Id**: https://orcid.org/ 0009-0007-3759-7946

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ABSTRACT

Annona squamosa, also known as custard apple, has many medicinal properties. The use of Annona squamosa is highly recommended to remove toxins from the human body. It is also used to treat respiratory problems such as asthma, allergies, cough prevention and seasonal colds. Research on Annona squamosa has also shown the anti-inflammatory, anti-asthmatic, antimicrobial and anaphylactic, analgesic, anti-diarrheal and immunomodulatory properties of this plant. Annona squamosa from the Annonaceae family is the best example. Many trees and fruits. The fruits are known as custard apples and are edible. The pulp can be used for a flavoring in ice cream. Between 50 and 80% of the fruit is edible. The content of vitamin C is important (35-42 mg/100 g) and slightly more than grapes. The nutritional value of thiamine, potassium and dietary fiber is also important. It is said to contain various substances such as alkaloids, hydroxyl isomeric ketones from the leaves, stegenin, samacquasin, anonasin and anonastatin from the seeds, stegogenin, squamone from the bark. Many studies have reported that it is antibacterial, antidiabetic, antitumor, antimalarial, anthelmintic, antigenotoxic and hepatoprotective. The leaves are used medicinally to treat cancerous tumors, as well as boils, insect bites and other skin ailments. Crushed leaves are smelled to relieve restlessness and fatigue, and are applied to wounds and ailments.

Keywords: Antibacterial, Antidiabetic, Antitumor, Anti-malarial, Anthelmintic, Anti-genotoxic, Ayurvedic.

INTRODUCTION

Herbs and herbal products have been used to fight diseases since ancient times. The Indian medical system is deeply rooted in our culture and caters to a large section of our population. Other alternative medicine has not been as effective as it is beautiful and stimulating for the health of the common man. Humans and animals use the beneficial substances, which are better than the vitamins and minerals found in herbal medicines. Annona Reticulate is one of the ingredients used in the Ayurvedic system of medicine. Custard apple is a sweet and aromatic fruit of the Annona family. This fruit is famous for its sweet and spicy flesh and creamy texture. In English speaking countries it is known as Bullock's Heart. Traditionally, the custard is "multi-fruited" and the fruit develops from the fusion of several individual flowers (ovaries) into one large fruit mass (when fruiting). Custard apples are round and heart-shaped fruits with polygonal depressions on the surface. There are many cultivars, depending on the cultivar, with green, brown, yellow and brown fruits.

Among trees and fruits, the custard apple, Annona reticulata L., is often ranked as an intermediary or "ugly duck" among the most popular members of the

genus. Its simplified English name is commonly used with other species and the ATEMOYA hybrid, and is sometimes mistakenly called 'sugar apple', 'sweetsop' and the Spanish 'anon' or 'rinon' in India. . Ramhal, all are applicable to Annona squamosa only. On its own, it has given itself few domain names. The skin color is found in the Bolivian name Chirimoya Roya, the Salvadoran Annona Rosada and the Guatemalan Annona Rosa or Annona Colorada. In other countries it is called anona de seso. Araticum monkey or Araticum do Mato are other names in Brazil. Some say it's a custard apple, with a hard outer skin. Inside, individual nails contain a creamy white capsule containing soft, shiny, dark brown seeds. The flesh is grainy just below the surface. The skin and seeds are inedible and thrown away. The taste has been described as similar to mangosteen, sweet and sour that melts in the mouth. Custard apple is smaller than the size of cherimoya (A. cherimola), pond apple (A. glabra) and soursop (A. muricata), but slightly larger than sugar apple (Atis fruit) (A. squamosa) grows abundantly in the Philippines. Sugar apple is called custard [1].

Figure 1: Tree of Annona squamosal

Traditional Uses

It is generally produced as an insecticide and anti-tumor, anti-diabetic, antioxidant, anti-lipid and anti-inflammatory agent characterized by the presence of cyclic peptides. The decoction of 2 handfuls of fresh leaves in 1 liter of water is ready to fight heart failure and palpitations (1 cup after meals). This infusion is also good for proper digestion and antispasmodic. The seeds are said to have anti-parasitic (against lice) action. A cream containing 3 ml of beeswax, 12 ml of almond oil, 3 ml of coconut oil, 6 ml of water, 6 ml of glycerin and 1 handful of crushed plant seeds is heated on in a water bath for 3 hours before use. . Hair in India, bruised leaves are applied to wounds and sores, and a decoction of the leaves is taken for dysentery. In the Aligarh district of northern India, villagers use a mixture of 4-5 fresh young leaves of Annona squamosa and black pepper (Piper nigrum) to control diabetes. It has been documented that this can ensure up to 80% of good results with regular treatment. A decoction of the bark is given as a tonic to prevent diarrhoea. Throughout tropical America, a decoction of the leaves is taken as an expectorant, febrifuge, tonic, cold remedy, digestive, or urinary purifier. Leaf extract is also used in baths to reduce rheumatic pain.

Sitopaladi churna is an Ayurvedic remedy for cough, cold and runny nose. The use of leaf extract improved plasma insulin activity and lipid index, and reduced blood glucose levels and lipid peroxidation, indicating that high levels of triglycerides and total cholesterol are related to diabetes can be completely controlled by withdrawal. . The leaves and bark of some species are used as folk medicine. The strong bark is used to carry loads in the Amazon rainforest and wooden tools such as tool handles and clamps. The wood is classified as yellow and brown in color.

Table 1: Nutrive value of Annona reticulate

Custard apple (Annona reticulata), Fresh, Nutritive value per 100 g, (Source: USDA National Nutrient data base)		
Principle	**Nutrient Value**	**Percentage of RDA**
Energy	101 Kcal	5.0%
Carbohydrates	25.20 g	19.0%
Protein	1.70 g	3.0%
Total Fat	0.60 g	3.0%
Cholesterol	0 mg	0.0%
Dietary Fiber	2.4 g	6.0%
Vitamins		
Niacin	0.500 mg	3.5%
Pantothenic acid	0.135 mg	2.5%
Pyridoxine	0.221 mg	17.0%
Riboflavin	0.100 mg	8.0%
Thiamin	0.80 mg	7.0%
Vitamin A	33 IU	1.0%
Vitamin C	19.2 mg	32.0%
Electrolytes		
Sodium	3 mg	<1.0%
Potassium	382 mg	8.0%
Minerals		
Calcium	30 mg	3.0%
Iron	0.71 mg	9.0%
Magnesium	18 mg	4.5%
Manganese	0.093 mg	4.0%
Phosphorus	21 mg	3.0%

In Mexico, fruit juice is used to treat colds and fevers. Mass has mutagenic properties. It is mostly used as an ornamental plant and grows together with banana plantations. This orange-skin fruit is from Brazil and is rarely available. The leaves are used to treat diabetes, fatigue, and the juice is used as a vermifuge. Unripe dried fruit is used as a remedy for diarrhea and dysentery. The root and bark are used for toothache. The leaves, seeds, and young fruits are insecticides. The seeds are used in humans for their

insecticidal and antiseptic properties. The roots are said to contain apomorphine compounds: reomerine, annonin and dehydroreomerine, which produce skeletal muscle relaxant effects. The yellow gum extracted from the seeds shows sympathetic effects, such as dilated pupils, dry mouth and reduced secretions. It has been shown to have antitumor activity in in vitro and in vivo studies. Fruits and juice are used for worms and parasites, cooling fever, increasing breast milk after childbirth, astringent against diarrhea and dysentery. Crushed seeds are used to kill internal and external parasites, head lice and worms. The leaves and roots are said to be sedative, wound-healing and nerve tonic, and a tea is made for various ailments associated with these effects. A decoction of the leaves is used to treat coughs, colds, dysentery and acidity. A decoction of the bark is used for diarrhoea, and the root is used for dysentery. The fruits are used to make ice cream and milk drinks. Crushed leaves are used on internal and external wounds, ulcers and inflammation of the stomach.

Figure 2: annona squamosa linn. Plant: (a) leaves, stem, flowers and fruits; (b) matured fruit; (c) pulp; (d) seeds; € dried fruit powder; (f) canned pulp; (g) fruit shake; (h-i) sitaphal ice-cream; (j) sitaphal rabdi; (k) sitaphal kheer

Health Benefits of Custard Apple

Custard apples have more calories than cherimoya. 100 grams of the fruit contains 101 calories compared to cherimoya's 56 calories. Most of the calories come from simple carbohydrates. However, there are no saturated fat or cholesterol.

Like other fruits from the Anona family, custard also contains many polyphenolic antioxidants. Among them, the most famous are the Anunaceae stegenines. Acetogenin compounds such as asimicin and anonasin are potent cytotoxic agents. These compounds are anticancer, antimalarial and anthelmintic.

Custard has more vitamin C (19.2 mg/100 g) than cherimoya. However, sugar apple has the highest (36.3 mg/100 g) of this vitamin among all pineapples. Vitamin C is a powerful natural antioxidant. Eating vitamin C products helps the human body to resist infectious diseases and remove harmful free radicals and detoxify the body.

Custard is a good source of B-complex vitamins, especially vitamin B-6 (pyridoxine, 17% per 100 grams). Pyridoxine helps maintain GABA neurons in the brain. High levels of GABA in the blood can help relieve nervous tension, stress and headaches.

Custard contains minerals such as calcium, copper, magnesium, iron (9% RDI per 100 g) and magnesium. In addition, it contains more potassium (382 mg/100 g) than cherimoya (287 mg/100 g).

Ayurvedic Pharmacology Properties

Antioxidant Activity

Free radical potential of leaves of Annona squamosa Linn. It was studied using different antioxidant screening models. Ethanol extract at 1000 µg/ml showed maximum removal of radical cation 2, 2-azinobis-(3-ethylbenzothiazoline-6-sulfonate) (ABTS) was found up to 99.07%, followed by stable radical 1, 1 removal of. Diphenyl, 2-picrylhydrazyl (DPPH) (89.77%) as well as nitric oxide

radical (73.64%) used in the same concentration. However, the extract only showed superoxide radical scavenging activity and antilipid peroxidation potential, which was performed using rat brain homogenate. The findings suggest the antioxidant activity of plants (Shirnaikar and Rajendrank, 2004). A study was carried to analyses the antioxidant effect of oral administration of aqueous extract of plant's leaf on blood glucose, hemoglobin, glycosylated haemoglobin, plasma insulin, antioxidant enzymes and lipid peroxidation in liver and kidney to streptozotocin (STZ)-induced diabetic rats".Oral administration of the water extract for 30 days in diabetic rats significantly reduced the levels of glucose, lipids and lipid peroxidation, but increased plasma insulin activity and antioxidant enzymes such as catalase, superoxide dismutase, reduce glutathione and glutathione peroxidase It is determined that the Water extract supplement is effective in controlling blood sugar levels, plasma insulin improves lipid production and effective in preventing diabetic complications by lipid synthesis and antioxidant systems in diabetic rats. Results from previous studies have shown that polar extracts are better scavengers of free radicals than polar extracts. The leaves extracts of the two parts showed high flavonoid content.

Antitumor Activities

Annona squamosa, also known as custard, has a strong biological principle in all areas. The effect of aqueous and organic extracts of defatted plant seeds on AK-5 mouse histiocytic tumor cell line was investigated. Both extracts significantly inhibited apoptotic cell death by increasing caspase 3 activity. Downregulation of anti-apoptotic genes Bcl-2 and Bclxi and increased intracellular ROS production, were positive binding and decreasing intracellular GSH levels. Furthermore, DNA fragmentation and Annexin-V staining confirmed that the extracts involved apoptosis in tumor cells through oxidative stress. The aqueous extract of plant seeds has significant in vivo antitumor activity against AD-5 tumor. In previous studies, plant seed extract has shown significant antitumor activity against human liver cells in vitro and in vivo, indicating the potential to develop the extract as an anticancer drug. New cancer. Aqueous extracts of seeds have significant antitumor activity in vivo against AD-5 tumor.

Antimalarial Activity

The great activity shown by the extracts of Annona squamosa suggests that these two plants are effective against insects, especially mosquitoes, and therefore they can be a useful source of larvicidal weapons. EtOAc fractions of the plant were the most potent, causing 100-90% mortality in 50 years. To determine the active principles in the EtOAc fraction, the larvicidal test showed some of the three sub-fractions Sq-1, Sq2, Sq-3, for growth in a dose-dependent manner ($p \geq 0.05$), but decreased significantly. Activity from the Original fraction shown. At the same concentration levels, this indicates that there are many polar compounds in the extract that work together or compete in the active sites. The plant collected from Brazil showed a larval effect on Aedes adopictus and C. quinquefascinits and Anopheles Stephensi. The results of the larval activity support the current reports and show that the extracts of Annona species are effective against mosquitoes. In recent studies on Annona squamosa, all the compounds showed moderate activity against chloroquine-sensitive and chloroquine-resistant Plasmodium falciparum.

Anthelmintic Activity

The anthelmintic activity of Annona squamosa and its leaf extract has been investigated using different samples. Hexane, ethyl acetate, ethanolic extract of the raw material were tested at different concentrations, including the determination of paralysis time and death time (Narwade, 2019Anti-genotoxic effect: The anti-genotoxic effects of aqueous extracts of Annona squamosa skin were evaluated by determining the frequency of micronucleated polychromatic red blood cells (MnPCE) and chromosomal abnormalities were significantly higher in DMBA-treated animals than in control animals Oral administration of aqueous and ethanolic skin extracts significantly reduced the frequency of MnPCE and disease chromosomal damage in hamsters treated by DMBA. Although both extracts have shown antigen-toxic effects, the effect of the ethanolic extract was significantly stronger than that of the aqueous extract. The present study demonstrates the anti-genotoxic effects of the plant bark extract in DMBA-induced genotoxicity in Syrian golden hamsters. Studies on the effectiveness of plant disease have shown that the treatment of plant extract significantly changes the levels of serum acidity under conditions of oxidative stress [2].

Anticancer Activities

1-(4-βD-glucopyranosyloxyphenyl)-2-(β-D glucopyranosyloxy)-ethane was first isolated from the shoots of Annona squamosa. Compounds isolated from Platy shoots

were investigated for anticancer activity. Models used for investigation include cold resistance, pyloric blockade, aspirin, alcoholic gastric ulcer and histamine-induced duodenal ulcer model. The product was compared to the standard drug omeprazole. The result for the investigation of antisecretory activity in vivo by reduction of total acid and pepsin in pyloric ligation determined that inhibition in vitro of H(+)K(+)-ATPase activity confirmed by the reduction of plasma gastrin level. Proliferative cell protection was observed by inhibition in alcohol, aspirin models and increased mucin levels in a pyloric bridge model.

Hepatoprotective Activity

Aqueous and alcoholic extracts of the leaves were used to investigate the hepatoprotective activity. This study was conducted on the Wistar rat strain. The hepatotoxicity test was performed using isoniazid and rifampicin, the standard drug silymarin was used as a reference. The result was a significant decrease in total bilirubin and a significant increase in total protein level, and a significant decrease in ALP, AST, ALT and γ-GT in the treatment group compared to the group hepatotoxic. In the histopathological study, the hepatotoxic group showed necrosis and inflammation of the liver in the central lobular region and portal triaditis. The group of animals treated with portal triaditis had little inflammation, and their lobular structure was normal. It should be noted that the extract of Annona squamosa cannot completely cure the liver damage caused by isoniazid and rifampicin, but it can reduce the effect of these drugs on the liver.

Anti-arthritic, anti-inflammatory and Analgesic Activities

The above activities were evaluated and validated using the combined extract of Annona squamosa and black seeds in different animal models. The metatarsal feet of Sprague-Dawley rats were assessed by back swelling and body weight, determination of AST, ALT and TP and the support of the knee joint The result of the combined extraction was significantly reduced paw size increased body weight and decreased high levels of ALT, AST and TP. Regarding the antiarthritic activity, histopathologically confirmed the fact that there was a significant reduction in neutrophil infiltration, pannus formation and bone in the animal treated with plant extract. This extract showed that compared to the standard reference drugs, pethidine sulfate and indomethacin, it has analgesic and anti-inflammatory activity in a dose-dependent manner.

Antimicrobial Activity

Antimicrobial activity was evaluated using four metal extracts. Agar diffusion method was chosen to check the antibacterial activity. Two gram-positive bacteria (Staphylococcus aureus and Bacillus subtilis) and two gram-negative bacteria (Escherichia coli and Pseudomonas aeruginosa) were selected for investigation. The results of the investigation showed that the highest limit of inhibition was in the methanolic extract against aeruginosa (MIC: 130 µg/ml) followed by the ether oil extract against aeruginosa (MIC: 165 µg/ml) and methanolic extract against E. coli (MIC: 180 micrograms.) was observed. /ml). To evaluate the antibacterial activity another study was performed using three different solvent extracts of leaf of Annona squamosa and Annona reticulate. Agar cup and broth dilution methods were selected to test antibacterial activity using three Gram-positive (Bacillus subtilis, Staphylococcus aureus and Staphylococcus epidermidis) and five Gramnegative (Escherichia coli and Pseudomonas aeruginosa, Salmonella typhi, Vibrio alginolyticus, Vibrio cholerae) bacteria (Intaranongpai, 2006). The screening results showed that the inhibitoriest effect was observed by methanolic extract followed by ether oil and aqueous extracts for Anona squamosa and Anona reticulata leaves. Bacillus subtilis, Staphylococcus epidermidis, Staphylococcus aureus and Vibrio alginolyticus were the most sensitive bacterial strains among all test organisms. None of the plant extracts showed growth against Salmonella typhi. Hypoglycemic and Anti-diabetic Activity: The ethanolic extract of Annona squamosa leaves when administered orally to the normal as well as the streptozotocin (STZ)-induced diabetic rats and alloxaninduced diabetic rabbits at different dose, proved that the dose of 350 mg/kg body weight was found to reduce the fasting blood glucose (FBG) level by 6.0% and the peak blood glucose during the glucose tolerance test (GTT) was also reduced by 17.1% in the normal rats".. The same dose of the ethanolic extract has reduced the FBG level by 26.8% and also improved the glucose tolerance by 38.5 and 40.6% during the GTT in alloxan-induced diabetic rabbits [3].

Politics

Mosquitoes threaten human health by transmitting serious diseases. Development of the resistance, cross-resistance, and also the rising cost as well as the possible

toxicity hazards arises due to the synthetic insecticides usage were some of the reasons this has led to the discovery of herbal products in recent years.The larvicidal and the growth regulating activities of Annona squamosa was reported against A. stephensi and other mosquitoes. Annona squamosa has been evaluated for its larvicidal potential against a variety of mosquitoes, but the active compound that is toxic to the larvae remains to be discovered.

Stress and Depression

Citafal is said to be a good source of B-complex vitamins that help regulate GABA neuron substances in the brain. It calms the mind and helps relieve stress, anxiety, irritability and depression.

During Pregnancy

Citafal has an effect on the development of the brain, nervous system and immune system of the fetus. Regular use of Citafal during pregnancy reduces the risk of miscarriage and reduces the pain of childbirth. Some say it's a wonderful pregnancy product and helps fight morning sickness, nausea and mood swings. This product is very useful for improving the immune system, the nervous system and the development of the brain of the fetus. It is a good source of copper. Generally, pregnant women should consume 1000 micrograms of copper. A small amount of copper in the body causes premature birth. Therefore, eating this fruit is very beneficial. It contains vitamin C and vitamin A, which are very useful for the fetus in the womb. It is brilliant for proper growth of eyes, skin, and hair and blood tissue.

Anti-aging

Citafal contains L-lysine and L-proline, amino acids that help build collagen in the body. Collagen is a substance that gives structure and elasticity to skin tissue. The amount of antioxidants in custard apples protects cell membranes from damage from free radicals, allowing the body to fight the signs of aging. Citafal promotes the growth of new cells and renews the skin. It helps to eliminate the colors and wrinkles associated with aging. It also gives color and texture to skin stars. Citafal is also effective for increasing breast milk production after delivery.

For a Stronger Digestive System

Removes toxins from the intestines and helps the intestines to function properly. It also prevents stomach related diseases like acidity, ulcers, gastritis and acidity. This sweet fruit is very effective in treating diabetes. Apples are dried and crushed to treat diarrhea and dysentery. A medium custard apple contains 6 grams of dietary fiber, which is 90 percent of the recommended amount. Fiber gives bulk to the stool and eases constipation.

Antihyperlipidemic Activities

This study shows the effect of Annona squamosa multi-herb formulation on blood glucose, plasma insulin, and tissue lipid profile and lipid peroxidation in streptozotocin-induced diabetic rats. Induced. A liquid extract of a multipurpose herbal preparation of the plant's fruit was administered orally (200 mg/kg body weight) for 30 days. Different doses of various herbal preparations were studied on blood glucose and plasma insulin in diabetic rats, and the level of lipid peroxides and fat tissue in diabetic rats were also determined. By streptozotocin-induced. Effects were comparable to tolbutamide. Treatment with polyherb formulation and tolbutamide significantly decreased blood glucose and increased plasma insulin. The multi-herb model also resulted in a significant reduction in tissue fibrosis and lipid peroxide production. The reduction of lipid peroxides and tissue lipids clearly demonstrated the anti-hyperlipidemic and anti-peroxidative effect of many herbs in addition to its anti-diabetic effect.

Effect on Head-lice

This study focused on the isolation and identification of active compounds against head-lice from the hexane extract of Anona squamosa seeds using chromatographic and spectroscopic methods. These compounds were tested against head lice under laboratory conditions. Triglyceride, oleate esters and crude hexane extract diluted with coconut oil. These compounds killed all head lice tested in 49, 11 and 30 minutes. Triglyceride concentrations can be used as indicators for the quantitative analysis of active compounds to control the quality of plant seeds and their extraction. This first observation will be useful to evaluate the quality and chemical stability of the head-lice preparation from this plant [4].

Conclusion

Annona squamosa linn plant has many beneficial properties. Currently, a lot of work has been done in many models and new clinical studies. The review of Annona squamosa linn shows diabetes, cancer, antipyretic, anti-fertility and anti-diarrhea, etc. The activities of this house in various forms have no side effects and safety features of this house. Annona squamosa flax is a healthy and useful food with many nutrients for the human body, such as high protein, low cholesterol and high fiber. Antioxidant activity and other

activities seem to be a smart remedy for various diseases, so this plant will be explored in the future pharmaceutical industry. Annona squamosa linn is a cost-effective, reliable and safe source of plant material to meet the demand for food.

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Antimicrobial Activity

Antimicrobial activity was evaluated using four metal extracts. Agar diffusion method was chosen to check the antibacterial activity. Two gram-positive bacteria

(Staphylococcus aureus and Bacillus subtilis) and two gram-negative bacteria (Escherichia coli and Pseudomonas aeruginosa) were selected for investigation. The results of the investigation showed that the highest limit of inhibition was in the methanolic extract against aeruginosa (MIC: 130 µg/ml) followed by the ether oil extract against aeruginosa (MIC: 165 µg/ml) and methanolic extract against E. coli (MIC: 180 micrograms.) was observed. /ml). To evaluate the antibacterial activity another study was performed using three different solvent extracts of leaf of Annona squamosa and Annona reticulate. Agar cup and broth dilution methods were selected to test antibacterial activity using three Gram-positive (Bacillus subtilis, Staphylococcus aureus and Staphylococcus epidermidis) and five Gramnegative (Escherichia coli and Pseudomonas aeruginosa, Salmonella typhi, Vibrio alginolyticus, Vibrio cholerae) bacteria (Intaranongpai, 2006). The screening results showed that the inhibitoriest effect was observed by methanolic extract followed by ether oil and aqueous extracts for Anona squamosa and Anona reticulata leaves. Bacillus subtilis, Staphylococcus epidermidis, Staphylococcus aureus and Vibrio alginolyticus were the most sensitive bacterial strains among all test organisms. None of the plant extracts showed growth against Salmonella typhi. Hypoglycemic and Anti-diabetic Activity: The ethanolic extract of Annona squamosa leaves when administered orally to the normal as well as the streptozotocin (STZ)-induced diabetic rats and alloxaninduced diabetic rabbits at different dose, proved that the dose of 350 mg/kg body weight was found to reduce the fasting blood glucose (FBG) level by 6.0% and the peak blood glucose during the glucose tolerance test (GTT) was also reduced by 17.1% in the normal rats".. The same dose of the ethanolic extract has reduced the FBG level by 26.8% and also improved the glucose tolerance by 38.5 and 40.6% during the GTT in alloxan-induced diabetic rabbits.

Politics

Mosquitoes threaten human health by transmitting serious diseases. Development of the resistance, cross-resistance, and also the rising cost as well as the possible toxicity hazards arises due to the synthetic insecticides usage were some of the reasons this has led to the discovery of herbal products in recent years.The larvicidal and the growth regulating activities of Annona squamosa was reported against A. stephensi and other mosquitoes. Annona squamosa has been evaluated for its larvicidal potential against a variety of mosquitoes, but the active compound that is toxic to the larvae remains to be discovered.

Stress and Depression

Citafal is said to be a good source of B-complex vitamins that help regulate GABA neuron substances in the brain. It calms the mind and helps relieve stress, anxiety, irritability and depression [9].

During Pregnancy

Citafal has an effect on the development of the brain, nervous system and immune system of the fetus. Regular use of Citafal during pregnancy reduces the risk of miscarriage and reduces the pain of childbirth. Some say it's a wonderful pregnancy product and helps fight morning sickness, nausea and mood swings. This product is very useful for improving the immune system, the nervous system and the development of the brain of the fetus. It is a good source of copper. Generally, pregnant women should consume 1000 micrograms of copper. A small amount of copper in the body causes premature birth. Therefore, eating this fruit is very beneficial. It contains vitamin C and vitamin A, which are very useful for the fetus in the womb. It is brilliant for proper growth of eyes, skin, hair and blood tissue.

Anti-aging

Citafal contains L-lysine and L-proline, amino acids that help build collagen in the body. Collagen is a substance that gives structure and elasticity to skin tissue. The amount of antioxidants in custard apples protects cell membranes from damage from free radicals, allowing the body to fight the signs of aging. Citafal promotes the growth of new cells and renews the skin. It helps to eliminate the colors and wrinkles associated with aging. It also gives color and texture to skin stars. Citafal is also effective for increasing breast milk production after delivery.

For a Stronger Digestive System

Removes toxins from the intestines and helps the intestines to function properly. It also prevents stomach related diseases like acidity, ulcers, gastritis and acidity. This sweet fruit is very effective in treating diabetes. Apples are dried and crushed to treat diarrhea and dysentery. A medium custard apple contains 6 grams of dietary fiber, which is 90 percent of the recommended amount. Fiber gives bulk to the stool and eases constipation [10].

Antihyperlipidemic Activities

This study shows the effect of Annona squamosa multi-herb formulation on blood glucose, plasma insulin, and tissue lipid profile and lipid peroxidation in streptozotocin-

induced diabetic rats. Induced. A liquid extract of a multipurpose herbal preparation of the plant's fruit was administered orally (200 mg/kg body weight) for 30 days. Different doses of various herbal preparations were studied on blood glucose and plasma insulin in diabetic rats, and the level of lipid peroxides and fat tissue in diabetic rats were also determined. By streptozotocin-induced. Effects were comparable to tolbutamide. Treatment with polyherb formulation and tolbutamide significantly decreased blood glucose and increased plasma insulin. The multi-herb model also resulted in a significant reduction in tissue fibrosis and lipid peroxide production. The reduction of lipid peroxides and tissue lipids clearly demonstrated the anti-hyperlipidemic and anti-peroxidative effect of many herbs in addition to its anti-diabetic effect [11].

Effect on Head-lice

This study focused on the isolation and identification of active compounds against head-lice from the hexane extract of Anona squamosa seeds using chromatographic and spectroscopic methods. These compounds were tested against head lice under laboratory conditions. Triglyceride, oleate esters and crude hexane extract diluted with coconut oil. These compounds killed all head lice tested in 49, 11 and 30 minutes. Triglyceride concentrations can be used as indicators for the quantitative analysis of active compounds to control the quality of plant seeds and their extraction. This first observation will be useful to evaluate the quality and chemical stability of the head-lice preparation from this plant [12].

CONCLUSION

Annona squamosa linn plant has many beneficial properties. Currently, a lot of work has been done in many models and new clinical studies. The review of Annona squamosa linn shows diabetes, cancer, antipyretic, anti-fertility and anti-diarrhea, etc. The activities of this house in various forms have no side effects and safety features of this house. Annona squamosa flax is a healthy and useful food with many nutrients for the human body, such as high protein, low cholesterol and high fiber. Antioxidant activity and other activities seem to be a smart remedy for various diseases, so this plant will be explored in the future pharmaceutical industry. Annona squamosa linn is a cost-effective, reliable and safe source of plant material to meet the demand for food.

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