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## Cranberry fruit: An update review

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### Abstract

Cranberry is product from the berry fruit of a North American green shrub. Cranberry fruit is acidic nature and it can involve with unwanted bacteria in the urinary tract. The main health benefits of cranberry juice is urinary tract infection, and the other uses are respiratory disorders, kidney stones, cancer and heart disease, anti tumour effect, Anti-aging Benefits, Lung inflammation, prevent tooth decay etc. It is also used to preventing stomach disorders and diabetes. Cranberry juice is rich source of antioxidants, vitamin C and salicylic acid. One cup of Cranberry juice contained a total 8983 antioxidant capacity. Proanthocyanidin that is Ellura herbal drug is prepared from the cranberry pure extract. The main use of the Proanthocyanidin (Ellura) is used treatment of urinary tract infection (UTI) in patients especially in women. Proanthocyanidin (Ellura) is a pure herbal drug then with less side effects. Proanthocyanidin [Ellura] herbal drug is available in oral capsule form and oral tablet form and Ellura is also available in chewable tablets.

**Keywords:** Cranberry, anti oxidants, Bioactive Composition, Ellura drug, Proanthocyanidins.

### Introduction

Cranberry is product from the berry fruit of a North American green shrub. Cranberries are used different purposes and different benefits. It is useful in food as well as in herbal medicine *Vaccinium macrocarpon* is the Latin name of the Crain berry plant. Cranberry fruit contain large amount of antioxidants than it compared to other fruits and vegetables like spinach, broccoli, and apples. One cup of Cranberry juice contained 8983 antioxidants.

Cranberry fruit is acidic nature and it can involved with unwanted bacteria in the urinary tract. Cranberry is act as a diuretic.

Cranberry herbal formulation i.e. Ellura or Direct berry fruit juice has been used to the preventing symptoms of Urinary tract infection (UTI) such as pain or burning with urination enlarged prostate, and healing the skin <sup>[1]</sup>.



**Fig 1:** Cranberry fruits

Cranberry juice is often sold as an herbal supplement. There are no regulated manufacturing standards and some marketed supplements have been found to be contaminated with toxic metals and other drugs. Herbal/health supplements should be purchased from a reliable source to minimize the risk of contamination.

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### **Uses of Cranberry juice**

The main health benefit of cranberry juice is urinary tract infection, and other uses of cranberry juice are respiratory disorders, kidney stones, cancer and heart disease. It is also used to the preventing the stomach disorders and diabetes. Cranberry juice is also preventing the gum diseases caused by dental plaque. Phytonutrients are naturally derived from the cranberry plant compounds. The Phytonutrients are prevent the more health problems [2].

### **Nutritional value of cranberry juice**

Cranberry juice contains the antioxidants, vitamin C and salicylic acid. One cup of cranberry juice is included the diet which contains the proteins and carbohydrates. And it also contains the minerals like Calcium, Magnesium, Iron, Phosphorus, Sodium, Potassium and zinc. And the cranberry juice also contains vitamins like Thiamine, Riboflavin (B-2), Niacin (B-3), Pyridoxine (B-6), Alpha tocopherol (vit E) and Phylloquinone (vit k) [3].

### **Health benefits of cranberry juice**

Cranberry juice has long used for curing various illnesses. There are

#### **Urinary tract infections (UTI)**

The main health benefit of Cranberry juice is Urinary tract infection. The existence of certain micro-organisms in the urine that exceed normal levels. This infection is develop in the bladder and in the kidney to cause renal parenchyma, or in the prostate resulting in bacterial prostatitis. Cranberry juice contains proanthocyanidins than it possess the anti-clinging properties, which prevent the bacteria on the walls of the bladder. These proanthocyanidins compounds are prevent these bacteria and flush out of the body through urination. The Cranberry juice is drinking regularly it can help to prevent recurring the Urinary tract infections (UTIs) in middle-aged women and pregnant women. Regular intake of cranberry juice in diet it has been proven beneficial for patients undergoing to compare the other treatments for the urinary tract diseases. It is beneficial in reducing risk of UTI in women. This Cranberry juice is not effective in treating UTIs once you have the infection, and it is only a preventative measure.

#### **Antitumor Effects**

The another health benefit of cranberry juice is anti-tumour effect. The Polyphenolic compounds are present in the Cranberry juice. Regular consumption of cranberry juice inhibits the development and spread of lung, breast, colon, prostate and other cancerous tumours. Cranberry juice contains high amounts of salicylic acid. Then it helps to reduce the tumours.

#### **Cardiovascular health**

Cranberry juice is used to the help of cardiovascular health. The flavonoids are present in cranberry juice. And It shows antioxidant properties and may decrease the atherosclerosis. Atherosclerosis is a disease in which the arteries are narrowed due to the build-up of fat, calcium and cholesterol found in the blood. This obstructs the flow of oxygen-rich blood to the various parts of the body and may lead to potentially fatal outcomes like heart attacks and strokes. These compounds have been shown to delay and suppress the oxidation of low density lipoprotein (LDL) and beneficially stimulate the blood platelets.

#### **Prevents Tooth Decay**

Cranberry juice is also prevents the tooth cavities. Proanthocyanidin is present in the Cranberries. Then it restricts

the harmful bacteria from clinging to the teeth. The Proanthocyanidin is inhibit acid production and protect the teeth from disease by preventing the growth of plaque.

#### **Prevents Cancer**

Cranberry juice is prevent the growth of various cancer cells. Cranberry contains proanthocyanidins used to inhibit the growth of cancer cells. And also Cranberries are rich source of flavonoids. This flavonoids play a main role in reducing the risk of cancer. Proanthocyanidins are prevent the micro-tumour from developing in the blood vessels. Regular consumption of Cranberry juice prevents the rapid growth of tumours. Cranberries are also used to prevent the multiplication of breast cancer cells.

#### **Strengthen of Bones and Teeth**

Naturally the Cranberry juice is rich source of calcium. Regular consumption of Cranberry juice is used to increase the strengthen of bones and teeth.

#### **Cures Cold**

The fresh Cranberry juice is effective at fighting against infections. Then it cures sore throat and cold.

#### **Good for obesity**

Cranberry juice is also rich source of organic acids. These organic acids contain an emulsifying effect on the fat deposits. So, it is good for obesity people.

#### **Prevent Kidney Stones**

The Cranberry juice contain high amount of acid compounds used to prevents kidney stone formation.

#### **Scurvy**

Scurvy is a disease caused by deficiency of vit C. Cranberry juice provide the rich source of vitamin-C. Regularly consumption of this juice to prevent the Scurvy

#### **Lung inflammation**

The anti-inflammatory effects of cranberry juice have been proven to be effective against the inflammation caused in the lungs by the influenza virus. A substance called non dialyzable material or NDM prevents the influenza virus from sticking to the cells and it can preventing a flu infection.

#### **Anti-aging Benefits**

Cranberry juice is also used to the anti -aging effect. Phytonutrients and antioxidants are present in cranberries. These are play a main role in providing protecting the skin. Cranberries are also have a therapeutic properties that protect the cells from the free radicals.

Cautions of cranberry juice:

Cranberries and cranberry juice offer a different health benefits, barring the few exceptions are listed.

Warfarin (Coumadin):

Warfarin is used to an anticoagulant drug. This drug is works the lowers of blood clots in the body. These blood clots are show a serious conditions like cardiovascular disorders or clots in the lugs. Whose people take Warfarin in this conditions should be cautions regarding the intake of cranberries as they are at a high risk of bleeding.

#### **Aspirin allergy**

Cranberries contain rich source of salicylic acid, which is also present in aspirin. People who need blood thinners and are

prescribed aspirin. Then should avoid the consuming too cranberry juice. Cranberries are should also be restricted if you are allergic to aspirin.

### Kidney stones

Cranberry juice concentration contain rich source of concentration of oxalate and calcium. This concentration oxalate and calcium are chance to developing the calcium-oxalate stones and uric acid stones in some people. People who have history of kidney stones then to avoid the consuming the cranberry supplements or berry juice.

### Cranberry Bioactive Composition

Cranberry has a rich photochemical composition, particularly flavan-3-ols, A-type procyanidins (PACs), anthocyanins, benzoic acid, and ursolic acid. Cranberry flavan-3-ols are present as monomers, oligomers, and polymers. These oligomers and polymers are also referred to as PACs or condensed tannins and represent ~85% of the total flavan-3-ols on a weight basis. Cranberry PACs comprise a group of heterogeneous chemical structures, characterized by their constitutive units, types of linkage, and degree of polymerization (DP). (-)-Epicatechin is the predominant constitutive unit in cranberry PACs, whereas (+)-catechin and (epi) gallocatechins are present only in trace amounts. The building blocks of PACs can be condensed either via a single C-C bond between C4 of the upper unit and C8 or C6 of the lower unit (B-type PACs) or with an additional ether-type bond between C2 of the upper unit and the hydroxyl group at C7 of the lower unit (A-type PACs). PACs with at least 1 A-type linkage account for 51–91% of total PACs in cranberry. The distinction between A- and B-type PAC structures is of importance because the difference can influence their biological properties. The A-type PACs exhibit significantly greater inhibition of in vitro adhesion of P-fimbriated *Escherichia coli* bacteria to uroepithelial cells than the B-type PACs, the initial step of UTI. Many plant foods, such as apple, grape, and chocolate, contain high amounts of PACs, but only a few (plums, peanuts, avocados, cinnamon, lingo berry) contain A-type PACs, and none, except for lingo berry, at the amount found in cranberries. Cranberries at 100 g fresh weight (FW) provide  $419 \pm 75$  mg total flavan-3-ols, including  $70 \pm 13$  mg oligomers with DP of 4–6,  $63 \pm 15$  mg oligomers with DPs of 7–10, and  $234 \pm 49$  mg polymers, whereas monomers, dimmers, and trimmers are present at lower amounts ( $7.3 \pm 1.5$ ,  $26 \pm 6$ , and  $19 \pm 3$  mg, respectively). These data are derived from 1 study in which a range of foods were analyzed for their PAC content.

Proanthocyanidin that is Ellura herbal drug. It is prepared by the pure cranberry extract. It is used to maintain urinary tract health [4].

### Working of Ellura herbal drug

Working of Ellura herbal drug may be used during recurring cystitis and as soon as possible to flush the bacteria from the urinary tract, with prescribed combination of medications.

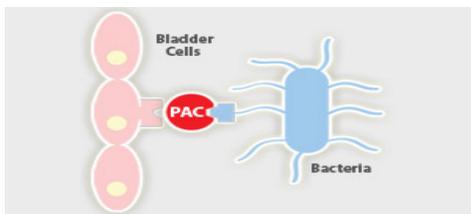


Fig 2: Mechanism of action of PAC

Ellura drug is extracted from the pure juice of the cranberry fruit. Ellura's success lies in its 36mg of Proanthocyanidins (PACs). The PACs cap the arms of the bacteria so that they cannot attach to the walls of urinary tract. The bacteria is flushed from body before an infection can start, leaving the system clean and clear. The Ellura activity is seen after just three hours after taking the formulation. So bacteria and the risk of infection is stopped earlier [5]. Proanthocyanidin [Ellura] drug is available in capsules form and tablets form.

### Formulation of Ellura drug

36 mg of Proanthocyanidins (PAC) as measured by DMAC and it is extracted from Cranberry juice. it is a active ingredient. Some excipients are also used there are gelatine, Microcrystalline cellulose, Magnesium stearate and Silicon dioxide. Ellura does not contains any artificial preservatives, colours or sweeteners

### How do use Ellura drug?

#### To maintain a clean urinary tract

Take 1 capsule daily with water. And it maintain a clean urinary tract.

#### At on-set of warning signs or early symptoms

Take 2 capsules at the same time with water for 2 days. Continue to take 1 capsule daily for 26 days. It is important to take the entire recommended amount of Ellura to ensure that all of the bacteria is flushed.

#### With sexual intercourse

Take 2 capsules with water just before or after intercourse. Then take 1 capsule daily for the following 3 days.

Ellura may be taken with or without food at any time during the day, but be sure to take Ellura at approximately the same time each day.

Ellura will not treat or cure an infection and is NOT a replacement for antibiotics during an active urinary tract infection. During an active infection, Ellura should be taken along with an antibiotic in order to help the body flush the bacteria [6].

### Precautions

If people are suffer any of the health problems, consult Doctor or Pharmacist before using this product.

Should not use this Ellura if you are

- Allergic to Ellura drug.
- Any history of kidney stones.
- Liquid products and chewable forms of Ellura drug may contain sugar. Liquid forms may also contain alcohol. Then diabetic patients and liver disease patients are to avoid the usage of Proanthocyanidin (Ellura) herbal drug.
- A stomach disorder persons.
- If any people are allergic to aspirin then to avoid the usage of herbal drug (Ellura) [7].

### Directions & dosage:

Adults above 12years: 1 capsule daily, or as directed by health care professional.

Children below 12 years:

Use only as directed by health care professional [8].

### Uses of Ellura drug:

- Ellura drug has been mainly used for preventing the "bladder infections" i.e. (urinary tract infections).
- It has also been used for decreasing the odour of urine in

people who are unable to control urination.

- This product should not be used alone to treat bladder infections. It is used combination of antibiotics [9].

### Side Effects of Ellura

**An allergic reaction:** A very serious allergic reaction to this product is rare.

- ✓ Including the rashes, itching/swelling (especially of the face/tongue/throat), severe dizziness, trouble breathing.
- ✓ Continued pain or burning when urinate.
- ✓ Vomiting, severe stomach pain.
- ✓ Signs of kidney stone painful or difficult urination, pink or red urine.
- ✓ upset of stomach
- ✓ Nausea, vomiting
- ✓ Diarrhoea.
- ✓ During pregnancy, this product is should not be used [10].

### Conclusion

Cranberry is natural drug used in the treatment of unwanted bacteria in the Urinary tract Infection. Proanthocyanidin is Ellura herbal drug is prepared from the pure Cranberry extract. It has an adjuvant effect in the prevention of Urinary Tract Infection (UTI) in patients especially in female patients. And less side effects.

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