

## A Critical Review on Nutritional and Medicinal Importance of Lemon

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### Abstract

A small evergreen plant named lemon has such a magical and mystical importance that researchers paid a lot of attention to it for millennia. It is not only used as a source of food but also serves as medicinal and nutritional importance. Nutritionists say that having food instead of medicine increases the chances of permanent recovery as well as decreases the chances of side effects. Same is the case with lemon, if we start our day with it, it decreases the fat as well as cleanses the digestive tract, if we apply it on skin, will get the shiny and acne free skin ever. If we drink it with honey, will get rid of sore throat, also help to relieve constipation and many many more. In short from small bee stings to even large kidney stones it is uniformly advantageous to every age group and gender.

**Keywords:** Lemon; Obesity; Cancer; Hypertension; Nutrition

### Introduction

Citrus Lemon (L.) commonly known as limo or nibu in Pakistan and areas of sub-continent. It belongs to the family of Evergreen tree species named as Rutaceae that is commonly found in South Asia and primarily in North East India. Lemon is known for its various distinctive features and importance in every aspect of life whether it is related to food, medicine, or nutrition. But the most important point is this that it has great medicinal and nutritional importance [1,2]. All parts of it are utilizable and have their own importance, like its juice is helpful in many ways including reducing fever, which is too common among us [2], blood pressure, that is considered as main step toward chronic disorders [1] etc., its leaf that was treated as waste is also utilizable for extracting oil to serve as medicinal and nutritional property as well as have great importance as natural preserving agent [3]. Not only lemon is used individually but it is proved to be more beneficial when added with honey for sore throat and water for reducing weight. To prove it beneficial in many ways scientists and researchers have done many experiments on its every part not only on mice [4] and rats [5] but also practically on humans [1,6]. It does not have any side effect according to the modern literature as well as traditional one [2] that's why people use it without any hesitation and danger of getting disease from its side effects. Many disorders are treated by using it at home, due to its special properties and also it is inexpensive, easy and quick way to cure many aches and even diseases [1].

### Materials and Methods

Article was written by reviewing literature from Google Scholar and PubMed.

### Results and Discussion

#### Nutritional contents

A lemon has enriched with highly and some rare nutrients providing their qualities and richness to the consumer's body. Lemon has sour and somehow bitter taste due to which it is not commonly taken as such, instead by mixing its juice with water or honey, and mixing its flavor or itself in different dishes and salads people are replenishing themselves with the sourness of lemon.

A lemon without its peel is capable of giving 17 calories whereas with peel it contains 22 calories. Lemon juice contains 3 calories per 1 table spoon and according to "World's Healthiest Foods a quarter cup of it contains 31 percent of recommended vitamin C intake and 3 percent of Folate and 2 percent of potassium which make up total 13 calories". When mixed with water, which is proved to be a perfect day start [2] lemon juice can provide 1 calorie that is very helpful in reducing weight by reducing calorie intake in human body, it means water reduces the sourness and calories of lemon juice and can reduce the excessive fat layer of body [7]. The most important water soluble vitamin i.e. vitamin C that has much importance in our daily routine is present in it, and according to "The United States Department of Agriculture (USDA) national nutrient

database says that one raw lemon, without peel, weighing about 58 grams (g), contains 44.5 mg of vitamin C”.

In addition to it, it also contains 0.64 g of protein that is essential for building muscles and bones, it also contains 0.17 g of fat, and most prominently 5.41 g of carbohydrate that is the readily available source of food daily taken including 1.6 g of fiber and 1.45 g of sugar.

Lemon is also a source of many minerals though in a small amount but they do show their importance in many ways. For example, it contains 116 mg of potassium that works synergistically with sodium in our body to regulate the water balance in our body, 15 mg of calcium that is responsible of supporting bones [2]. And it also have 0.5 mg of iron, 7mg of magnesium, 13 mg of phosphorus, 0.05 mg of zinc, 9 mcg of folate and 1 mg of vitamin A that are served to be micro minerals and are engaged in many function and supporting functions of our body. In addition, lemons contain small amounts of thiamin, riboflavin, vitamin B-6, pantothenic acid, copper, and manganese.

An antioxidant and anti-inflammatory agent named as Naringenin is also present in it that fight against inflammation [6]. Flavonoids such as erioctitrin and heperidin in high amounts whereas diosmin in comparatively small amount [1]. Moreover it contain citral, limonene, terpinol, geranyl acetate, and linalyl and certain alkaloids that fight against cancer and bacteria [2]. Not only its fruit but its wastes like leaf is also enriched with something very beneficial. It has been researched lately that it contains oil in it that is very beneficial in many ways due to presence of monoterpenes and linalool [3].

### Medicinal importance

Lately people are seemed more concerned about changing their lifestyle by replacing medicine with natural food and herbs and their derivatives. It is far more considerable to use natural food items as medicine and using them or their nutrient contents in making pharmacological medicines. Lemon along with it several magical components in it is not only used as traditional medicine but also act as raw material for many medicines. Each of its component has its own signature cure which will be very significant, of course! Traditionally, it is used to cure many diseases at home for example obesity, UTI, gall bladder, stones, and kidney stones, acne scars and pimples etc. [2]. Starting from common childhood and adolescent obesity to major diseases like Cancer and UTI, lemon is doing wonders.

### Obesity

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health. Mixing lemon with glass of warm water can break adipose tissue and body fat that results in reversing the condition, not only this, it can control food cravings due to pectin present in it [7]. Lemon peel extracts are also used as remedy for childhood and adolescent obesity [6]. Citrus present in lemon aids for decreasing lipid and lipoprotein layer of the body [2,6].

### Hypertension

Hypertension is known to be more common among people of old age as compared to young ones is also curable by it due to flavonoids like erioctitrin, heperidin and diaosmin and vitamin C [1], and water extract of lemon peel [8] and it also suppress blood cholesterol level as well [5]. Mixing lemon juice with sugar can decrease both diastolic and systolic BP [1].

Lemon juice therapy is being discovered to treat idiopathic hypocitraturic calcium stones which is a big step toward nutrition replacing pharmaceuticals. Citrus fruits and juices are used as pharmacological therapies such as potassium citrate for hypocitraturia in recurrent stone.

### Cancer

Cancer is abnormal division of cells and fatal in most of the cases is reversible by this small ball of magic it is called as anticancer plant due to alkaloids present in it [2]. Lemon is useful as a medicinal plant for cancer chemotherapy.

Lemon is termed as antibacterial plant and food, oil extract of lemon leaf inhibits growth of bacteria because of monoterpenes and alkaloids in it [3]. Lemon juice plus hot water is best antibacterial gargle [2].

In addition to it, lemon itself, its juice, its leaf oil, citric acid, alkaloids and many other nutrients are widely used in medicines such as “osteoporosis, insomnia, asthma, nausea, vomiting, travel sickness, acne spots, throat infections, scurvy, antifever, and last but not the least PH balance etc. [2].

### Conclusion

Writing down the benefits of lemon under one heading is not so possible, the above recorded are just few of them that has been researched so far. Above mentioned characteristics and benefits of lemon has a privilege for people of all gender and age groups. Lem-

on has numerous embellished nutrients like citric acid, vitamin C, alkaloids, flavonoids, micro minerals, and some trace minerals etc. it is used by people in many ways that are equally advantageous. Its benefits are vast and even larger than many therapies for example it is remedy for cancer and UTI and use as alternative for many pharmacological drugs, sometimes its derivatives and its parts are used in making medicines for certain disorders. It can depress fever, balance blood pressure and also water level in body, it is beneficial for skin diseases like acne. It stimulates the metabolism, aids the digestive tract, and relieves the pain from bee sting and many more. On a concluding note it is stated that presence of lemon in our world is blessing and it is admirable cannot be ignored at all.

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### Conflict of Interest

No financial interest or any conflict of interest exists.

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