

# BENEFICIAL AND ADVERSE EFFECTS OF LEMON WATER ON ORAL CAVITY-A REVIEW

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## INTRODUCTION

Lemon is an important medicinal plant of the family Rutaceae. It is cultivated mainly for its alkaloids, which has anticancer activities and the antibacterial potential in crude extracts of different parts (viz., leaves, stem, root and flower) of Lemon against clinically significant bacterial strains has been reported (Kawaii et al., 2000). Citrus flavonoids have a large spectrum of biological activity including antibacterial, antifungal, antidiabetic, anticancer and antiviral activities (Burt, 2004 and Ortuno et al., 2006). Flavonoids can function as direct antioxidants and free radical scavengers, and have the capacity to modulate enzymatic activities and inhibit cell proliferation (Duthie and Crozier, 2000). In plants, they appear to play a defensive role against invading pathogens, including bacteria, fungi and viruses (Sohn et al., 2004). Flavonoids are generally present in glycosylated forms in plants, and the sugar moiety is an important factor determining their bioavailability. Preparation from peel, flowers and leaves of bitter orange (*Citrus aurantium* L.) are popularly used in order to minimize central nervous system disorders (Pultrini et al., 2006). The peel of Citrus fruits is a rich source of flavonoid glycosides, coumarins, and volatile oils (Shahnah et al., 2007). Many polymethoxylated flavones have several important bioactivities, which are very rare in other plants (Ahmad et al., 2006). In addition the fiber of citrus fruit also contains bioactive compounds, such as polyphenols, the most important being vitamin C (or ascorbic acid), and they certainly prevent and cure vitamin C deficiency-the cause of scurvy (Aronson, 2001). Lemon grows on small, thorny trees which reaches a height of 10 to 20 feet. The leaves of the lemon are dark green in colour and they are arranged alternately on the stem. The lemon has a white, fragrant flower with five petals. This particular flower comes from a lemon cultivar called 'Pink Lemonade'. The leaves of this cultivar are variegated and the fruit is striped. Lemons are oval citrus fruits with smooth porous skin. Some fruits have a pointed tip on the bottom of the fruit while other lemons are rounded at the base. Some kinds of lemons are quite larger than other lemon varieties and resemble elongated grapefruits. Lemon has many varieties few of which includes Bush lemon, Eureka, Lisbon, Ponderosa, Variegated Pink, Verna, Villafranca, Yen Ben and Yuzu. The colour range of lemon fruit is from greenish yellow to bright yellow. Lemons look very similar to limes, but lemons tend to be a little larger and are yellow when ripe, where limes are green. The lemon is both a small evergreen tree which is native to Asia. As well as tree's oval yellow fruit. Throughout the world, the fruit can be used for culinary and non-culinary purposes. Primarily it is used for its juice through the pulp and zest is also used mainly in cooking and baking. The top producers of lemon include India, Mexico, Argentina, Brazil, Spain, Peoples Republic of China, United States, Turkey, Iran and Italy. The health benefits of lime include weight loss, skin care, good digestion, relief from constipation, eye care, and treatment of scurvy, piles, peptic ulcer, respiratory disorders, gout, gums, urinary disorders, etc. The first fruit that comes to our minds when it comes to medicinal uses is perhaps the good old lime. This sour citrus fruit can do what many specialist medicines cannot. Lime, bearing the scientific name *Citrus Aurantifolia*, is being used for ages for treatment of various ailments.

## THE BENEFITS AND MEDICINAL USES OF LIME:

Scurvy: Lime is so famous as a cure for scurvy, the disease which is caused due to deficiency of vitamin-C and characterized by frequent infections with cough and cold; cracked lips and lip corners; ulcers in tongue and mouth; spongy, swollen and bleeding gums etc. that now a days even a child can tell you that. Since its cause is deficiency of vitamin-C, its remedy is none other than vitamin-C, and lime is blessed with this vitamin. In olden days, soldiers and sailors were given lime to keep safe from scurvy, which

was a dreaded disease then. Even now, it is distributed among the workers working in polluting environments like those working in furnaces, painting shops, heat treatments, cement factories, mines etc. to protect them from scurvy.

**Digestion:** Lime has an irresistible scent which waters the mouth and thus aid primary digestion (the digestive saliva floods your mouth even before you taste it). Then the acids in it do the rest. While they break down of the macro molecules of the food, the Flavonoids, the compounds found in the fragrant oils extracted from lime, stimulate the digestive system and increase secretion of digestive juices, bile and acids and also stimulate the peristaltic motion. This is the reason behind having lemon pickle with lunch and dinner is an age old practice in India and some of its neighbouring countries.

**Peptic Ulcer:** In addition to vitamin-C, lime contains special compounds called Flavonoids (Limonoids such as Limonin Glucoside) which have anti-oxidant, anti carcinogenic, anti biotic and detoxifying properties which help healing of peptic and oral ulcers.

**Protection against Gum Disease:**

Lemons and limes have strong antibacterial and anti-inflammatory properties. It is for these reasons that they may help lower your risk for developing gum disease. Both fruits are good sources of vitamin C, and in addition to decreasing your risk for gum disease, lemons and limes can also help manage bleeding gums. The root causes of gum problems are deficiency of vitamin-C (Scurvy, which gives bleeding and spongy gums) and microbial growth. Sometimes, the ulcers and wounds from bones, hard objects etc. are also the causes. In all of these, limes can help you. Its vitamin-C cures scurvy, Flavonoids inhibit microbial growth and potassium and Flavonoids help heal ulcers and wounds.

The vitamin C and antibacterial effects of these citrus fruits can help eliminate oral bacteria while strengthening gum tissue. Lemons and limes can also help you overcome dry mouth because they help promote optimal salivary gland function. If you have an autoimmune disorder that causes dry mouth or if you take medications that diminish salivary flow, consider adding some fresh lemon or lime juice to your water. If, however, you have acid reflux or chronic heartburn, limit your intake of lemons and limes because they can worsen your symptoms.

**Other Benefits:** Lime is a good appetizer and digestive agent. It helps cure arthritis, rheumatism, prostrate and colon cancer, cholera, arteriosclerosis, diabetes, fatigue, heart diseases and even very high fever (in contrary to popular belief). The best part of it is that it has no side effects.

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