

Garlic_FAQ_1994.txt

GARLIC =====

CULTIVATION: ===== Garlic is a perennial or biennial sub-globular bulb consisting of 8-20 cloves surrounded by silky pink-white skin.

Garlic needs a sunny or partial shady location. The soil should be rich, moist, and well drained, but tolerates also poor soil. Take offsets or divide bulb in autumn or spring. Plant garlic cloves 1 1/2 inches deep. Sow seeds in spring. Germination time is about 7 days, and plant matures in about 100 days. Grows in zone 1-10. Transplant or thin to 9 inches apart. Water in dry spells and enrich soil annually. Remove flowers for better flavor.

Pick flowers as they open, and dig up bulbs in late summer. Harvest when the tops fall over, and dry the bulb in a cool and shady location.

CULINARY USES: ===== A strong flavoring for many dishes, hot and cold. Rub around a salad bowl to subtly flavor salads, or add 1-2 cloves to dressings and marinades. Mash with butter and bake in a fresh loaf of bread. Insert sliced cloves into joints of meat before roasting. It can even be baked as a vegetable.

To make garlic oil, which can be used in small amounts on salads, or saved for medicinal purposes, blend 1 cup of peeled garlic cloves, and 1 cup of olive oil. Pour into a labeled jar. Let the garlic be absorbed into the oil for a week, but shake the jar several times a day. Strain out the garlic and keep the liquid cold in the refrigerator.

To get the most flavor from fresh garlic, you must slice through the clove, releasing the odorous strongly flavored oil inside the skin. A clove of garlic is very nutritious. Garlic contains thiamine and trace minerals such as calcium, magnesium, iron, potassium, phosphorus, and zinc. 2-3 heads of garlic a day can also stimulate your immune system.

Garlic_FAQ_1994.txt

MEDICAL USES: ===== Garlic has the potential to treat and prevent a number of cardiovascular diseases. Research discovered ingredients in garlic that thin the blood, so blood is less likely to clot, and it can also lower the cholesterol level.

Scientist believe that it is the smelly sulfer-containing ingredients in garlic that work the magic. There are still some unresolved questions as to whether odorless garlic is effective. Because many the therapeutic compounds have not been found in cooked or processed garlic. The best effect is obtained from fresh, raw garlic.

There are even hints of a possible link between garlic and low rate of stomach and colorectal cancer. The typical dosage from studies is in the range of 3-5 cloves per 120 pound of body weight per day. A drink made from a well crushed garlic clove simmered in 1/2 pint of milk for about 10 minutes can be sipped to relieve a dry hacking cough. Whole garlic bulbs contain a sustenance called Alliin, when ground or chewed, it turns into Allicin. Allicin inhibits or totally destroys many types of bacteria and fungi, including the microorganisms most likely to cause vaginal yeast infection.

WARNING: ===== Eating garlic past by the jar could burn the lining of the stomach and esophagus and even cause anemia.

Subj : GARLIC FAQ

[Excerpts from ChemTao: Synergies In The Life Science v2.0 (c) 1990 LKS]

Foodstuffs --- Garlic

Active Compounds

Garlic_FAQ_1994.txt

Garlic (and onions, members of the plant genus allium - all of which are rich in sulfur compounds) contains large amounts of organic sulfides ---extraordinary antibiotics and anti-carcinogens.

One of the most powerful, diallyl sulfide, was also found to protect animals from the cancerous transformation of cells with doses just four hours before they were exposed to a potent carcinogen, dimethyl hydrazine.

There are more than 30 compounds and elements in garlic (among roughly 400 constituent compounds) which influence body function: minerals such as selenium and germanium; amino acids such as glutathione, methionine and cysteine; amino alkyl sulfoxides, allin; disulfide oxides, allicin; deoxidized sulfide, disulfide and sulfhydryl-bearing compounds such as diallyldisulfide, S-allyl cysteine and the oxide of trithia-dodecatriene, ajoene.

[George Barany, chemist at the U. of Minnesota, reports that ajoene is as potent as aspirin in preventing sticky red blood platelets from clumping together. Related factors lengthen clotting time, while others actually dissolve clots. All three effects can impact on heart attack and stroke prevention.]

National Cancer Institute nutritionist Elaine Lanza:

"There is still a big interest in the area of fat and fiber, but right now, there is more emphasis on the idea of trace compounds, non-nutrients in vegetables and fruits that work against tumor formation."

"Garlic tops the list as a source of these trace elements or micronutrients."

Dr. Herbert Pierson, a toxicologist who (until recently) headed the National Cancer Institute's "designer foods" program:

Garlic_FAQ_1994.txt

"Garlic is a veritable pharmacopeia. That's why garlic has been found in every medical book of every culture ever. For thousands of years, garlic has been used for the treatment and prevention of disease. So there has to be something there."

"A huge data base exists documenting health benefits ranging from cardiovascular effects to cancer inhibition, from the slowing down of aging to the detoxification of heavy metals and other poisonous chemical substances."

John Laszlo of the American Cancer Society:

"This line of research is legitimate."

Garlic's sulfur compounds structures contain S-S and S-H groups typical of major enzymes and hormones which regulate body function and body response to nutrients and drugs. [see: "The Chemistry of Garlic and Onions, Dr. Eric Block; Scientific American, vol. 252: pg 114-119, March, 1985]

Propylene sulfide, a garlic and onion extract found to be mildly effective against tumors, acts on the enzyme liposaminase, thought to be related to cancer development if not properly controlled.

Dr. Benjamin H.S. Lau of the Loma Linda University School of Medicine, suggested in 1992 that garlic is a "biological response modifier", i.e., it increases the body's defenses against cancer.

Lau's research found that garlic's sulfur compounds boost the activity of macrophages and T-lymphocytes, immune system components that are summoned to destroy tumors.

Garlic contains a series of natural antioxidants that may help to explain its strong anticancer and antitumor activity. Antioxidants disarm

Garlic_FAQ_1994.txt

reactive body chemicals that can trigger the onset of cancer. By inhibiting the harmful action of oxygen (impacting on free radical activity), garlic possibly limits cell membrane damage, which is one mechanism in the aging process.

Bioflavonoids, the same anticarcinogens found in cruciferae (cabbage, cauliflower, brussels sprouts, etc.) and citrus, are also present in garlic.

Garlic lowers harmful triglycerides, cholesterol (LDL and VLDL) and blood pressure.

[A study of three groups in the Jain religious sect of India found members who consumed more than a pound of onions and at least 17 garlic cloves weekly. They all showed low blood levels of triglycerides and cholesterol. The orthodox members that abstained from allium consumption all their lives showed the opposite effect: high triglyceride and cholesterol levels. Values for a group on a moderate diet fell somewhere in between.]

[In 1990, David Kritchevsky of the Wistar Institute of Anatomy and Biology in Philadelphia found that garlic or garlic oil inhibits lab-induced arteriosclerosis in rabbits.]

[In 1992, researchers at the University of Munich in Germany isolated six garlic compounds that lower blood cholesterol in animals by blocking liver production. (This is essentially the same way new drugs such as Mevacor reduce cholesterol in humans.)
The garlic suppressed cholesterol formation by approx. 50% in test animals.]

Garlic also shifts the LDL-HDL lipoprotein ratio in a favorable direction, reduces dangerous blood clotting, aids in the treatment of diabetes, opens airways and alleviates asthma, and neutralizes many

Garlic_FAQ_1994.txt

environmental toxins (mercury and lead among them - garlic's sulfur molecules are highly reactive and bind with heavy metals).

A common thread among the garlic compounds is that they act upon prostaglandins, fatty acids in the body that regulate blood pressure, metabolism, temperature, fertility and cell division.

In conditions such as cancer, asthma and excessive clot formation, prostaglandin activity becomes rampant. Garlic and onion compounds interfere with this process.

Dr. Pierson: "It appears from biopsies that the prostaglandins that stimulate cell division are the bad guys in our bodies. What garlic and onions do is alter the way that prostaglandins are made so they don't get out of control, causing runaway cell division."

Allicin

One component of garlic, allicin (less potent than penicillin in its natural form), attacks (moderate doses hinder; larger doses kill) more than 23 kinds of bacteria, including staph and salmonella, as well as 60 types of fungi and yeasts, is effective against all of the 17 most dangerous fungi (Candida albicans included - a frequent cause of vaginitis), expels tapeworms, and restores sensation in areas affected by leprosy.

Dr. Byron Murray, prof. of microbiology at Brigham Young University has seen allicin immobilize 90 percent of a virus in a laboratory dish within 30 minutes. Allicin is known to destroy viruses that cause herpes and upper respiratory infection.

Allicin, the main active principle in garlic (and the first compound

Garlic_FAQ_1994.txt

formed after a clove is crushed), is produced through the combination of the amino acid alliin and the enzyme allinase. Thus, garlic cloves that have been chopped, squeezed or mashed have demonstrably greater health benefits than extracts from whole, unprocessed cloves. [The green sprout in many cloves of garlic is a prime source of allicin, although it may add a "harsh" flavor to foods.]

Most odorless, and other preparations of capsuled garlic, retain digestive and blood health properties, but do not retain antibacterial and antifungal components.

Research

Studies performed at Anderson Hospital in Houston by biologist Michael Wargovich disclosed that mice developed 75% fewer tumors when given diallyl sulfide prior to exposure to a colon-specific carcinogen. When the study was repeated using a carcinogen that affects the esophagus, the results were even more dramatic. Dr. Wargovich:

"We were shocked at the end of that experiment. Even though the garlic-treated animals were exposed to one of the most potent carcinogens around, NOT ONE GOT CANCER. We believe diallyl sulfide triggers the liver to detoxify carcinogens."

"This is no longer nutritional-food-store stuff. At our hospital, two cancer research sections, gastrointestinal and head and neck, have committed themselves to garlic chemopreventive studies. We realize that this presents a roadblock to a lot of tumors, and a lot of specialists in early cancers now consider this the way to go. It's really exciting."

Similar studies by Penn State University, American Health Foundation in Valhalla, NY, Lee Wattenberg and George Barany at the U. of Minnesota,

Garlic_FAQ_1994.txt

and Sidney Belman at the New York University Medical Center, which found that garlic-derived sulfur compounds inhibited tumors of the stomach and skin, are supportive of Dr. Wargovich's findings.

C.S. Yang, at the Laboratory for Cancer Research at Rutgers University's College of Pharmacy (Piscataway, NJ), injected rats with NNK, a substance found in cigarette smoke. Those animals pretreated with an oral dose of diallyl sulfide had a greatly reduced incidence of lung cancer.

The American Chemical Society, at an August, 1992 meeting in Washington, concluded that, although the anti-cancer potential of garlic (as well as soy sauce and cruciferae) compounds in humans was not known, consumption probably had a beneficial effect.

A National Cancer Institute study published in the 01/15/89 issue of the Journal of the National Cancer Institute, found that allium vegetables can significantly reduce the incidence of stomach cancer.

Questionnaires handed out in Linqu, China, compared the dietary habits of 685 patients with stomach cancer and 1,131 other people matched by age, sex, occupation and education who had no diagnosed cancer. People in the control, or cancer-free, group consumed from 25 to more than 50 pounds of allium vegetables a year. The cancer patients ate less than 25 lbs of the vegetable.

Conclusion? "Persons in Linqu tended to be exposed to mild doses of allium vegetables over long periods, likely beginning in childhood. Our study suggests that all or part of such exposure has resulted in ---

Effective Doses

An amount as small as 1.8 grams of garlic results in an increase in natural killer lymphocyte activity---a general immune system enhancer.

Garlic_FAQ_1994.txt

A lot of garlic researchers are themselves consuming garlic on a regular basis, Drs. Belman, Wargowich and Pierson among them.

Dr. Belman says his cholesterol level dropped from a disturbing 296 to 236 after he started watching his fat intake and taking three garlic pills/day.

In some parts of China, an average of five cooked cloves/day are consumed as part of the regular diet.

A recent issue of Eating Well magazine quoted a British endocrinologist who estimated that 7 to 28 cloves/day (or the equivalent) would be necessary to trigger significant drops in cholesterol and blood pressure.

Dr. Pierson believes the proper daily intake will be found to be eight cloves or its equivalent in capsule form.

Researcher Dr. Robert Lin (Nutrition International/Irvine, CA), expects that eating three fresh cloves of garlic/day will lower cholesterol an average of 10%, and up to 15% IN SOME PEOPLE.

Dr. Lin believes that as little as one crushed clove/day covers myriad health benefits, including chemical detoxification.

Raw vs Cooked Garlic

Garlic's antibacterial and anti-carcinogenic properties are most prevalent in its raw state.

Ajoene, one of the most powerful anti-cholesterol compounds, is not

damaged by heat. So cooked as well as raw garlic can lower cholesterol and act as a blood-thinner.

Ajoene's anticarcinogenic properties may also be retained [in a study of human cells, ajoene was found to be 3x as toxic to malignant cells as to normal cells].

Heating garlic in a frying pan of (for example) olive oil releases potent painkilling compounds.

[Thought by many researchers to be the next wave of analgesics - "the ibuprofins of the '90s".]

Boiling garlic creates the set of sulfur compounds that can dilate the bronchials in asthmatic individuals, and act as a decongestant, cough medicine and mucus regulator.

Supplemental Formulations

The odor-free supplements KYOLIC (marketed by the pharmaceutical firm Wakunaga of America) and Nature's Way GARLICIN, among others, appear to retain antibacterial and antifungal components, although NYU Medical Center researcher Sidney Belman feels that "the drying and deodorizing processes damage active oils".

Microbiologist Benjamin Lau (Loma Linda University/California) has found Kyolic can prevent tumors in animals and reduce blood cholesterol in human volunteers.

A Florida physician, Dr. Tariq Abdullah, in an unpublished study gave three healthy volunteers six Kyolic capsules/day, three others large amounts of raw garlic, and three others no garlic at all.

Immune system killer cell activity was measured, and after three

weeks, Abdullah reported that "the natural killer cells of those taking either type of garlic were more 'vicious', killing more than twice the number of cancer cells in vitro than did the killer cells from the control group."

Professor John Milner and Dr. J.Z. Liu of Penn State U. reported in a Jan. 93 issue of Carcinogenesis, that aged garlic extract significantly inhibited the development of breast cancer induced by chemical carcinogens.

Studies headed by Dr. John Pinto of Sloan Kettering Cancer Center, NY, disclosed that Kyolic inhibited the growth of human breast cancer cells in vitro.

Dr. Pinto: "S-Allyl cysteine and S-allyl mercaptocysteine in garlic are chiefly responsible for inhibiting the growth of cancer cells."

Dr. Robert Lin: "Combining all the evidence, it is beyond any doubt that adequate garlic consumption can help fight against cancers, including breast cancer. Aged garlic extracts contain more stable compounds TO WORK WITH than raw garlic."

A Los Alamos National Laboratory polymer scientist, Robert Hermes, by attaching a plastic molecule to garlic sulfides, has developed a synthetic garlic supplement free of odor, but retaining antibacterial, anticarcinogenic and cholesterol-lowering properties.

Historical Notes

An Egyptian medical papyrus from the 16th Century B.C. lists 22

Garlic_FAQ_1994.txt

remedies employing garlic for everything from heart disease and worms, to tumors, headaches and bites. Cloves of preserved garlic were found in the tomb of King Tutankhamen.

Ancient Olympic athletes chewed it to heighten stamina.

Aristotle, Hippocrates and Pliny touted garlic for its healing value.

East Indians use garlic for skin ulcers and cleaning wounds.

For centuries, the Chinese have drunk onion tea to relieve fevers, cholera and dysentery.

Louis Pasteur described the antibacterial properties of garlic.

Albert Schweitzer, deep in the jungle, mainstream pharmaceuticals depleted, gave his patients garlic for amoebic dysentery.

There are more than 300 types of garlic.

Individual cloves are planted and push up branchless spears ("garlic" is from Middle English: gar = spear; leac = leek). The spears are kept moist until mature, then allowed to yellow and dry out. Plants are undercut, pulled and "cured" in the field for three weeks.

[California produces 90% of the US crop (>250 million pounds); some of the best is reported to be cultivated around Gilroy, CA.]

In years when frost strikes garlic crops, the cloves turn out firmer and smoother.

Caveats

In lab animals, large amounts of garlic can make red blood cells fragile, raising the risk of anemia.

More than 20 grams of garlic/day (approx. one bulb) can damage red blood cells.

Garlic_FAQ_1994.txt

Because garlic contains irritants, people with hernias and stomach disorders should avoid consuming large amounts of raw garlic.

There are reported cases of allergic reactions or upset stomachs, and some volunteers on high doses have experienced vomiting and diarrhea.

Other reported reactions from raw garlic consumption: a burning sensation when urinating, heartburn, flatulence and belching.

Biochemist Sidney Belman (NY Med. Center): "In people, I haven't heard of any serious illness---certainly no fatalities."

Chemist Eric Block (State U. of NY/Albany): "There isn't much evidence that normal amounts of garlic are bad for you."

The side effects of garlic on humans appear to be minimal.

Garlic-and-oil seasoning mixes can pose a risk of botulism if not refrigerated. Mixes without an acidifying agent, such as citric acid, should be kept in the refrigerator. Avoid commercial mixes of this type.

Purchase / Storage

Avoid buying heads or bulbs that are soft, spongy or shriveled; garlic bulbs should have plump, firm cloves still covered with papery skin.

Keep garlic dry, cool and exposed to the air. Do not refrigerate heads of garlic or store them in tightly wrapped plastic bags.

[Outsized heads called "elephant" garlic are not true garlic, and their

chief selling point is their mildness.]

In a proper environment, garlic heads can last six months.

Notes

The area of naturally-occurring phytochemicals is fascinating. One should be aware that while elucidation of modes of action, etc. of the myriad compounds is on-going, specific synergies exist that can be exploited, now.

For example, it is known that garlic alters prostaglandin production, preventing runaway cell division. So do omega-3-fatty acids.

Prostaglandin E2, an eicosanoid which is produced in excess by many forms of cancer, inhibits the immune system, allowing tumors to grow. Omega-3-fatty acids suppress the production of this substance.

Omega-3's, like garlic and other phytochemicals, also protect arteries, inhibit blood clots, reduce blood triglycerides, reduce the risk of stroke, and heart attack, lessen the symptoms of rheumatoid arthritis and migraine headache, act as an anti-inflammatory agent, regulate the immune system, relieve bronchial asthma and combat early kidney disease.

[The use of farm-raised fish, lecithin, canola oil, etc. avoids the impacts of concentrated environmental toxins that can be found in fish oil capsules.]

Garlic_FAQ_1994.txt

Results from the USDA Human Nutrition Research Center at Tufts University (Medford, Mass.), the Dept. of Microbiology at Colorado State U. (Fort Collins), among MANY other studies, indicate that vitamin E is a powerful immune system stimulator.

Vitamin E also appears to inhibit the synthesis of prostaglandins. E, like garlic and C, also blocks the formation of nitrosamines.

Vitamin E (400 I.U. daily) also prevents low-density lipoprotein from becoming modified LDL. In other words, the vitamin prevents the conversion of harmless low-density lipoprotein into the oxidized compound that is recognized and ingested by macrophages (when they die, the fat-filled macrophages accumulate into deadly arterial plaque).

[Hermann Esterbauer, Prof. of Biochemistry, U. of Graz, Austria; J.C. Fruchart, Pasteur Institute, Lille, France; Sai R. Ramasastry, M.D., medical director, Dept. of Hyperbaric Medicine, Presbyterian-University Hospital, Pittsburg.]

Vitamin C greatly enhances the ability of vitamin E to prevent damage to LDL.

[Dr. Lester Packer, molecular biologist, U. of California/Berkeley (Journal of Lipid Research)]

Exercise triggers similar protective mechanisms in the body. Cardiovascular, respiratory and other benefits (some observable three weeks after starting a comprehensive exercise program) include:

- * Lowering of blood pressure among hypertensives.
- * Increase in protective, high-density lipoproteins (HDL's) and a lowering of total cholesterol levels.
- * Reduction in the amounts of triglycerides, another artery-damaging

type of blood fat.

Exploitable synergies resulting from consumption of garlic, soybean products, foods high in C and E plus supplements, and aerobic exercise alone, are obvious.---

³Allium sativum - Garlic (Liliaceae)³

Parts used - bulb. Fresh juice is most effective.

Constituents - contains volatile oil which is composed of allicin and sulphur related compounds plus citral, geraniol, etc.

Allicin is the major odour principle and taste of garlic. It is generated by action of the enzyme alliinase on alliin. Under normal conditions alliinase and alliin are separated from each other inside the garlic bulb. However when the bulb is cut or crushed, the two are brought together and alliinase turns alliin (a non volatile odorless sulfur amino acid) into allicin (a pungent volatile sulphur compound.)

- also contains enzymes, mucilage, protein and lipids.
- also contains selenium-best known source, has antioxidant activity.

Properties- alterative, stimulant, diaphoretic, expectorant, antiseptic, antibiotic, antispasmodic, cholagogue, vulnerary, vermifuge. Has antibacterial and antifungal properties. The ingredient allicin inhibits growth of various bacteria, fungi, amoebas.

Inhibits production of harmful bacteria in the colon, for

Garlic_FAQ_1994.txt

influenza, common cold and any types of viral infections.

Is natural penicillin - it has only 1% of the impact of penicillin but it is more effective with gram negative bacteria than penicillin.

Lowers blood pressure and blood cholesterol- use garlic oil for earaches.

For prevention and elimination of heavy metal poisoning from the body on a daily basis-due to sulphur content.

Is rubefacient and use as poultice in acute pectoral and abdominal inflammation and for drawing pustules and boils to a head- for canker sores

Overdose- induces blisters, irritations or dermatitis in some people.

Garlic Syrup- 1/2 pound peeled garlic buds
equal amounts vinegar and distilled water(enough to
cover garlic buds)
1/2 pint glycerine
1 1/2 pounds honey

Peel the garlic. Add equal amounts of vinegar and distilled water to cover the garlic. Use wide mouth jar, close tightly and shake well. Stand it in a cool place for four days. Shake it once or twice a day. Add glycerine. Shake the jar and let it stand another day. Strain the liquid with pressure through a sieve. Blend in the honey and place liquid in a labeled jar. Store in a cool place.

Optional: simmer three ounces of fennel seeds and/or caraway seeds for half an hour and add it to the mixture while it is steeping and before it is strained. Regular dose is 1 tsp three times a day.

This Article is taken from The Herbalist, newsletter of the Botanic Medicine Society. COPYRIGHT Dec 1988.

Garlic_FAQ_1994.txt

Membership in the Society is \$25.00 Canadian per year. You receive four copies of the Journal each year and help to promote herbalism and botanic medicine throughout Canada.

THE SOCIETY HAS NO PAID OFFICIALS and is run entirely by volunteers from among the membership.

If you would like more info please write:

Botanic Medicine Society.

P.O. Box 82. Stn. A.

Willowdale, Ont. CANADA.

M2N 5S7.

Allium sativum - Garlic (Liliaceae)

Parts used - bulb. Fresh juice is most effective.

Constituents - contains volatile oil which is composed of allicin and sulphur related compounds plus citral, geraniol, etc.

Allicin is the major odour principle and taste of garlic, It is generated by action of the enzyme alliinase on alliin. Under normal conditions alliinase and alliin are separated from each other inside the garlic bulb. However when the bulb is cut or crushed, the two are brought together and allinase turns alliin (a non volatile odorless sulfur amino acid) into allicin(a pungent volatile sulphur compound.

- also contains enzymes, mucilage, protein and lipids.
- also contains selenium-best known source, has antioxidant activity.

Properties- alterative, stimulant, diaphoretic, expectorant, antiseptic, antibiotic, antispasmodic, cholagogue, vulnerary,

vermifuge.

-

has antibacterial and antifungal properties.

- the ingredient allicin inhibits growth of various bacteria, fungi, amoebas.

- inhibits production of harmful bacteria in the colon, for influenza, common cold and any types of viral infections.

- is natural penicillin - it has only 1% of the impact of penicillin but it is more effective with gram negative bacteria than penicillin.

- lowers blood pressure and blood cholesterol- use garlic oil for earaches.

- for prevention and elimination of heavy metal poisoning from the body on a daily basis-due to sulphur content.

- is rubefacient and use as poultice in acute pectoral and abdominal inflammation and for drawing pustules and boils to a head- for canker sores

- use in cookery as an aid to digestion

- commonly used in formulas to help strengthen immunity to disease.

- onions are similar but not as strong.

Overdose- induces blisters, irritations or dermatitis in some people.

Try this Recipe

Garlic Syrup- 1/2 pound peeled garlic buds
equal amounts vinegar and distilled water(enough to
cover garlic buds)
1/2 pint glycerine
1 1/2 pounds honey

Peel the garlic. Add equal amounts of vinegar and distilled water to cover the garlic. Use wide mouth jar, close tightly and shake well. Stand it in a cool place for four days. Shake it once or twice a day. Add glycerine. Shake the jar and let it stand another day. Strain the liquid with pressure through a sieve. Blend in the honey and place liquid in a labeled jar. Store in a cool place.

Optional: simmer three ounces of fennel seeds and/or caraway seeds for half an hour and add it to the mixture while it is steeping and before it is strained. Regular dose is 1 tsp three times a day.

BUYING, STORING, AND USING GARLIC

There are several varieties of garlic, but those found in most American markets are the purplish-red and the white. Choose fresh garlic carefully. Try to avoid garlic packaged in boxes; you need to be able to lift the bulbs in your hand and squeeze them. Buy large, heavy bulbs that have not begun to sprout and have no shriveled or bruised cloves. (Remember a clove is one section and a bulb or head is the whole thing). If only small heads are available, increase the amount of garlic used in each recipe. Keep the garlic heads in a basket in a cool, well-ventilated part of the kitchen. Do not refrigerate them.

Garlic_FAQ_1994.txt

Don't buy too much garlic at a time. As it loses its freshness, it begins to shrivel and sprout. Never use shriveled cloves or those that develop bad spots. If the cloves are firm but have begun to sprout, do not use them whole in long-cooked, mild dishes. They may still be crushed or minced, however, and used as a seasoning. Split each sprouting clove, remove and discard the green sprout, and proceed.

Fresh garlic kept in a dry, well-ventilated place will last about a month. If necessary to store garlic longer, peel the cloves, cover them with olive oil, and store them in the refrigerator, where they will keep for three months.

To store garlic conveniently for any length of time without the use of oil, Madelene Hill from Hilltop Herb Farm in Texas suggests using the freezer.

Her advice: "buy only the freshest head. Separate the heads into cloves (no need to peel) and place in plastic bags. Tie the bags closed and freeze. The garlic will keep indefinitely in the freezer, and your freezer will NOT smell like garlic. To use, simply remove as many cloves as you need, peel while still frozen and use as you would unfrozen garlic."

Braids of garlic are very attractive and an ornament to any kitchen, but in many parts of the country they may be far from fresh. If the heads contain some shriveled cloves, use the braids for decoration and buy your cooking garlic loose. If you live in a garlic growing area and can purchase fresh braids, use the bulbs quickly.

UTENSILS:

Serious garlic lovers should have on hand the following equipment:

A SHARP KNIFE AND A WOODEN CHOPPING BOARD for mincing and chopping garlic cloves. Keep the wooden board well scrubbed to prevent bacteria and

odor. Keep the knife sharpened.

A RUBBER MALLET for crushing. Using this utensil for whacking garlic cloves gives the cook a marvelous sense of release. It is almost as good a tension reliever as whacking bread dough.

A FINE MESHED SIEVE OR STRAINER AND A "PUSHER" (a wooden pestle, spatula or spoon). You will use this time and time again for straining soups and sauces containing long-cooked garlic cloves. Pushing them through the mesh reduces them to a puree. If they were cooked unpeeled, the skin stays behind as the pulp goes through.

A PERFORATED POTTERY "GARLIC CROCK" or a loosely woven wire basket to store the bulbs.

A FEW "NONREACTIVE" POTS--pots that will not chemically react with acid ingredients such as wine, citrus juices, or tomatoes, causing the color or flavor of food to turn. Stainless steel, glass, ceramics, and enamel are nonreactive materials, while copper, cast iron, and aluminum are considered reactive.

GARLIC HINTS:

Don't forget that the old way of using garlic as a pungent seasoning is still wonderful. Some hints follow to help you season splendidly.

In its raw form, garlic is powerful. Those misguided souls who persist in thinking of garlic as vulgar, and even inedible, are usually thinking about it in its raw state. Pungency can be tempered by marinating raw garlic in an acid solution, using citrus juice, vinegar, or wine. But remember raw garlic has an excitement all its own. It may not do as an everyday food, but it provides an occasional exhilarating jolt to jaded taste buds.

Garlic_FAQ_1994.txt

Avoid garlic presses. They will reduce garlic to an evil-smelling mush. Instead mince the cloves with a sharp knife or -- for maximum garlicky flavor -- crush them by whacking them with a rubber mallet (available in all hardware stores). Crushing raw garlic releases its oils and the flavor will be at its strongest. The mallet method has the added advantage of facilitating the peeling. Hit the unpeeled clove lightly with the mallet to loosen the skin, remove the skin, and then hit the clove several times to crush it. No mallet? Until you get one, use the flat side of a chef's knife or cleaver to press down on the clove. Then remove the loosened skin and proceed.

Raw garlic, if allowed to saute until brown, becomes bitter, unpleasant, and inedible. Instead, saute it very gently and at the very most, allow it to turn a very pale golden color. DO NOT let it brown, or the dish will be spoiled. However, whole garlic cloves that have been gentled by simmering or boiling can be browned and even caramelized with delicious results.

Garlic powder, garlic salt, and granulated garlic impart an acrid, rancid flavor to foods. Avoid these products by using fresh cloves instead.

A salad without garlic is like a hug without a kiss, a day without sunshine; in fact, it's a damn shame. One of the best ways to permeate a salad with the flavor of garlic is to split a clove, then rub the salad bowl thoroughly with the split clove. Let the bowl dry for a few moments, then add the salad ingredients, the dressing, and toss. Add an additional scent of garlic by rubbing the heel of a stale loaf of French bread thoroughly with a split clove. Toss this CHAPON with the salad. Whoever gets to eat the crunchy, flavorful morsel is very lucky indeed.

If you want to add garlic flavor to a sauce or saute, but want no actual garlic pieces in the finished dish, put some cloves of garlic on toothpicks. Saute them, simmer them, and then--before the dish is served--pluck them out by their toothpicks. They make perfectly delicious little treats for the cook.

Garlic_FAQ_1994.txt

If you want to add zest to your favorite fried chicken recipe, try Andrea Smith's method. Andrea, an Atlanta cooking teacher and food consultant,

recalls her mother's secret of delicious fried chicken: "the use of garlic and onions to flavor the frying oil." Heat oil, add sliced onion and chopped garlic and cook until golden. Discard solids and proceed with your recipe. This works well for frying fish and shellfish as well.

=====

Better Nutrition
August 1993
page 46

GARLIC: Infection Fighter

Garlic (*Allium sativum*) may well be the ideal example in the debate about the nature and regulation of foods and supplements with health benefits. Garlic is obviously a food, having been consumed as such since antiquity. In fact, garlic has been cultivated as food for so long, no one knows for certain where it originated.

Garlic has been cultivated for at least 5,000 years. Modern botanists have never seen "wild" garlic, that is, the native species from which the cultivated variety has developed. So garlic has been cultivated for many centuries as food and has always been considered an especially healthful food.

Garlic's medicinal benefits have long been known too. In the middle ages, French priests reportedly used garlic to protect themselves from the plague. Garlic is now known to have powerful antimicrobial effects which have been documented for over a century.

Garlic_FAQ_1994.txt

British, German, and Russian soldiers used it during World War I to prevent battlefield infections. Garlic is so powerful an antimicrobial it is effective against at least eight types of antibiotic resistant bacteria.

Garlic lovers cholesterol levels, especially the level of the low-density lipoproteins (LDLs), which are risk factors for cardiovascular disease. Placebo-controlled clinical studies showed that even eating 100 grams of butter (nearly a whole stick) could not raise the cholesterol level of the blood in people who consumed garlic oil.

Numerous other studies have confirmed this effect, which has been attributed to volatile oil of garlic, garlic oil perles, aged garlic, garlic tablets, cooked garlic and onions, and even ordinary dried garlic powder. Garlic has also been shown to lower blood pressure and has a "blood-thinning" effect which may reduce the risk of strokes and heart attacks by inhibiting blood clotting.

The National Cancer Institute reports that the more garlic, onions and other related vegetables you eat, the lower your risk for stomach cancer. The study is a report on 1,695 humans, about a third of whom had stomach cancer. Garlic is actually toxic to some tumor cells and makes others more recognizable to our immune system, allowing natural immune processes to destroy the tumor cells.

Garlic also increases the activity of the immune system, enhancing phagocytosis and causing a dramatic increase in natural killer cell activity.

The Food and Drug Administration now appears intent on arguing that herbs should be regulated as drugs. Their reasoning, as articulated by their deputy commissioner for policy, Michael Taylor, is that foods are used for "taste, aroma or nutritional value." Herbs, he says, "have no recognized role in nutrition" and "are better evaluated in

Garlic_FAQ_1994.txt

pharmacological rather than nutritional terms."

In referring to herbs and amino acids, he says "it is a simple fact that these products are legally drugs and should be properly regulated as such."

Taylor made these comments before the Federation of American Societies for Experimental Biology at their conference in March. Around the same time, two other FDA officials, Taylor's assistant David Adams, and the head of the new drug division, Dr. Robert Temple, said that herbs should be subject to the same approval mechanisms as synthetic chemical drugs, namely the new drug application process.

Could garlic be caught up in FDA's war of words over the definitions of foods, drugs and dietary supplements? While garlic is clearly a food, when it is sold in the form of capsules or tablets, it no longer retains its flavor or aroma.

The public consumes garlic supplements because they believe them to have health benefits. But since these health benefits are not known to be the result of any essential nutrient, FDA might argue that garlic supplements are no longer foods, but rather drugs, and should be subjected to the multimillion-dollar new drug application process, before they can be sold.

FDA's definition of the acceptable attributes of food is clearly wrong. There are many examples of foods which have beneficial effects, but are not "nutritional." In fact, FDA's definition eliminates from the food category even water, which has no flavor or aroma -- except perhaps that of chlorine -- and has no nutritional value.

An even better example is fiber. The benefits of fiber are well known, and in fact in some ways are comparable to garlic, in that like garlic, fiber has shown beneficial effects in reducing the risk of both heart

Garlic_FAQ_1994.txt

disease and cancer. Fiber is not eaten for its flavor or aroma, and because it is not even absorbed by the human body, is clearly not nutritional.

Thus FDA has put themselves in the scientifically preposterous position of implying that a bran muffin is a food, but a bran tablet is not.

Fiber tablets and garlic tablets are in fact almost completely comparable. Neither is consumed for its flavor or aroma.

Both have cardiovascular and anticancer benefits, but in neither case are these benefits attributable to any known nutrient. So both substances, which are obviously just concentrated food substances, apparently fall into the category of supplements which the FDA would consider "legally drugs."

Warning: FDA could be hazardous to your health! If FDA succeeds in convincing Congress that any supplement without a recognized role in nutrition is legally a drug, then every herb capsule or tablet form could be removed from the market as a new drug without an FDA-approved new drug application. In fact, FDA makes clear in its regulations under the Nutrition Labeling and Education Act that they would consider as a drug any concentrated, isolated or encapsulated substance which was not known to have an essential role in human nutrition.

The agency charged with the task of protecting the health of Americans has never allowed the benefits of garlic or other herbs to be disclosed to the public by manufacturers of such products. Now it is taking a giant step backward in attempting to reclassify many supplements as unapproved new drugs. Even though some have impressive scientific evidence of health benefits, this approach would require millions of dollars worth of new safety and effectiveness documented before they could be lawfully sold.

Garlic is the very example I used in talking to the head of FDA's food

division, Dr. Fred Shank. I mentioned to him that the National Cancer Institute has found the consumption of increased amounts of garlic correlated with a decrease in risk of cancer. Scientific studies continue to confirm benefits of garlic against cardiovascular disease and cancer. It stimulates the immune system and kills disease agents, including bacteria and candida, the most common cause of yeast infections.

The Herb Research Foundation, 1007 Pearl St., Suite 200, Boulder, Colorado 80302 (tel # 800-748-2617) has over 1,000 scientific articles documenting the benefits of garlic. Just the summaries of scientific articles this century occupy over 200 pages.

It is up to us to show Congress that FDA is wrong. To find out how you can help to educate legislators with the facts about benefits and safety of herbs, contact us at the Foundation.

REFERENCES::

Abdullah, T.H., et al. "Enhancement of Natural Killer Cell Activity in AIDS with Garlic," Deutsche Aeitschrift fur Onkologie, 24:52-53, 1989.

Abdullah, T.H., et al. Journal of the National Medical Association 80 (4) :439-445, 1988.

Adoga, G.I. and Ohaeri, C.O. "Effect of Garlic Oil on Prothrombin, Thrombin and Partial Thromboplastin Times in Streptoztocin-Induced Diabetic Rats," Med. Sci. Res. 19 (13):407-408, 1991.

DeBoer, L.W. and Folts, J.D. "Garlic Extract Prevents Acute Platelet Thrombus Formation in Stenosed Canine Coronary Arteries," American Heart Journal 117 (4):973-975, April 1989.
(From Department of Medicine, University of Wisconsin, Madison 53792)

Garlic_FAQ_1994.txt

Foster, S. Garlic. Botanical Series No. 311, American Botanical Council, Austin, Texas, 1991.

Sharma, K.K., et al. "Effects of Raw and Boiled Garlic on Blood Cholesterol in Butter Fat Lipaemia," Indian Journal of Nutrition and Dietetics 13 (1):7-10, 1976.

Singh, K.V. and Shukla, N.P. Fitoterapia 55 (5):313-315, 1984.

Yu, W.C., et al. "Allium Vegetables Reduced Risk of Stomach Cancer," Journal of the National Cancer Institute 81:162-164, 1989.

From : Marianne Gerde 1:105/114 Thu 17 Feb 94 19:24

First, thank you for replying to my letter. It is always nice to get new mail!

Second, there was no location mentioned on your letter, so I can't really say much about that. I will just tell you what my dad does to grow garlic, because I know what he does works. I live in Washington, right across the Columbia River from Portland Oregon, where there is plenty of rain and it is rather mild. Just so you know.

You first take a couple of bulbs of garlic, separate the bulb into it's separate cloves, leaving the skins on the cloves on. Then you soak them, for a couple of days in water, in a window. My dad plants the garlic in the fall, and it actually grows about half way over the winter here. That may be just because of the climate, and the mild winters that allow us to do that. But, you can start now and it should take. If you plant it now, it should be ready in the fall. Anyway, so you soak them, and even let them sprout if you want to be sure they aren't duds. Then, you plant them, one and a half inches deep, about 5 inches apart or so. I must tell you, the soil that we have is very rich because we compost and have been for 13 years, so that may be a problem. I don't know a

Garlic_FAQ_1994.txt

lot about soil though.

In a book I checked out from the library, "Seeds, the Ultimate Guide to Growing....." by Sam Bittman, it says:
"Garlic thrives in soil fortified with aged manure or compost, so lay it on thick."

The temperature tolerance is "Hardy", and it does not need to be started indoors. It says to "set individual cloves the previous fall or as early in spring as possible." Bury full depth of clove. ph 5.8 to 6.8 for biggest cloves. Needs full sun. Needs moderate but steady supply of water. 90-100 days till harvest. Harvest when tops fall over and die. it says it should be fairly easy to grow.

I hope this helped some, and try to get some out as soon as you can. I planted some about 2 weeks ago, outside, and haven't seen any growth yet, but then I didn't soak them. So..., I will let you know when I see mine come up, the ones my dad planted in the fall are up quite a ways. Just for fun, I put one clove in a pot after soaking it and am trying it indoors. Let me know what happens!

Marianne