Camellia sinensis
[kuh-MEE-lee-uh sye-NEN-sis]

Family: Theaceae

Names: Teestrauch, Kamelie (German); théier, Rose du Japon, Camelia (French); Camelia té (Italian); Camelia (Spanish); An Hua Ch'A, Assam Tea, Cay, Ch'A, Green Tea, Hsueh Ch'A, Lo Chieh Ch'A, Ming, P'U Erh Ch'A, P'U T'O Ch'A, Shui Sha Lien Ch'A, Wu I Ch'A

Description: Evergreen shrub clipped to 5 feet in cultivation, with leathery, dark green leaves and fragrant white flowers. It is hardy to zone 8. It is in leaf all year, in flower from March to May. The scented flowers are hermaphrodite and are pollinated by bees.

Cultivation: Cultivated principally in India, Sri Lanka, and China, tea has been grown since the earliest times. Prefers a woodland soil but thrives in a warm open well-drained loam if leafmould is added. A calcifuge plant, preferring a pH between 5 and 7. It tolerates a pH in the range 4.5 to 7.3. Prefers the partial shade of a light woodland or a woodland clearing. This species is not hardy in the colder areas, it tolerates temperatures down to between 27 and 22°F. It prefers a wet summer and a cool but not very frosty dry winter. The fragrant flowers are very attractive to insects, particularly moths. Plants are not very self-compatible, self-fertilized flowers produce few seeds and these are of low viability. Seed - can be sown as soon as it is ripe in a greenhouse. Stored seed should be pre-soaked for 24 hours in warm water and the hard covering around the micropyle should be filed down to leave a thin covering. It usually germinates in 1 - 3 months at 55°F. Prick out the seedlings into individual pots when they are large enough to handle and grow them on in light shade in the greenhouse for at least their first winter. Plant them out into their permanent positions when they are more than 15cm tall and give them some protection from winter cold for their first year or three outdoors. Cuttings of almost ripe wood, 10 - 15cm with a heel, August/September in a shaded frame. High percentage but slow. Cuttings of firm wood, 7 - 10cm with a heel, end of June in a frame. Keep in a cool greenhouse for the first year. Leaf-bud cuttings, July/August in a frame. Dried seeds need chipping. Bushes are normally pruned to 3 feet. Leaves are picked during the year from bushes over three years old, and dried for use in infusions.

Properties: an aromatic, slightly bitter, astringent herb that stimulates the nervous system and has diuretic and bactericidal effects, Cardiotonic; Diuretic.

 Constituents: Contains xanthines, theobromine, flavonoids and vitamin C. Also about 25.7% protein, 6.5% fat, 40.8%
carbohydrate, 5% ash, 3.3% caffeine, 12.9% tannin.

History: Tea has been drunk in China for over 3,000 years. In China, many rituals have developed around tea.

Medicinal Uses: The tea plant is commonly used in Chinese herbalism, where it is considered to be one of the 50 fundamental herbs. Modern research has shown that there are many health benefits to drinking tea, including its ability to protect the drinker from certain heart diseases. It has also been shown that drinking tea can protect the teeth from decay, because of the fluoride naturally occurring in the tea. The leaves exert a decided influence over the nervous system, giving a feeling of comfort and exhilaration, but also producing an unnatural wakefulness when taken in large doses. They are used internally in the treatment of diarrhea, dysentery, hepatitis and gastroenteritis. Excessive use can lead to dizziness, constipation, indigestion, palpitations and insomnia. Externally, they are used as a poultice or wash to treat cuts, burns, bruises, insect bites, ophthalmia, swellings etc. Only the very young leaves and leaf buds are used, these can be harvested throughout the growing season from plants over three years old and are dried for later use. In Ayurveda, tea is considered astringent, sweat-inducing, and a nerve tonic, and is used for eye problems, hemorrhoids, tiredness, and fever. Tea leaves may be used externally to soothe insect bites and sunburn. Research in China suggests that green tea can help hepatitis. Research in Japan in 1990 showed that tea contains constituents that inhibit tooth decay.

Aromatherapy: Essential oil is used in perfumes, hair oil, and commercial food flavoring.

Cautions: Excess causes constipation, indigestion, dizziness, palpitations, irritability and insomnia. Tea contains 10-24% tannins which are a possible cause of esophageal cancer. Drinking tea with milk eliminates this risk because the tannins are neutralized.

Research: A one gram drink of black tea may have the potential to stimulate an insulin response and reduce blood sugar levels, suggests new research from England. The study, a four-way randomised, crossover trial, suggests that Britain's top tipple could have benefits for diabetics to blunt the blood sugar spikes, keeping the body's blood sugar levels relatively steady throughout the day. This has been linked to better regulation of appetite and a reduced tendency to snack. Researchers from King's College London and the University of Central Lancashire recruited 16 healthy subjects and assigned them to drink 75 grams of glucose in either 250ml of water (control), 250ml of water plus 0.052g of caffeine (positive control) or 250 ml of water plus 1.0 or 3.0 grams of instant black tea. Writing in the Journal of the American College of Nutrition, the researchers report that plasma glucose concentrations during the first hour in response to the drinks were not significantly different. However, after two hours plasma glucose concentrations were significantly in the group who consumed 1.0 grams of tea, relative to the control and caffeine drinks. Moreover, drinking the black tea was associated with increased insulin levels compared with the control and caffeine drinks at 90 minutes. The health benefits of tea, including protection from certain cancers and Alzheimer's, have been linked to the polyphenol content of the tea. Green tea contains between 30 and 40 per cent of water-extractable polyphenols, while black tea (green tea that has been oxidized by fermentation) contains between 3 and 10 per cent. The four primary polyphenols found in fresh tealeaves are epigallocatechin gallate (EGCG), epigallocatechin, epicatechin gallate, and epicatechin. Chemical analysis showed that the tea was rich in polyphenolic compounds (total, 350mg/g). Bryans and co-workers state that the polyphenol content of the tea was most probably behind the effects. They state that these compounds could have an insulin-stimulating effect on pancreatic B-cells.
- cells responsible for insulin production.

Source: *Journal of the American College of Nutrition*
Volume 26, Number 5, Pages 471-477 "The Effect of Consuming Instant Black Tea on Postprandial Plasma Glucose and Insulin Concentrations in Healthy Humans"
Authors: Judith A. Bryans, P.A. Judd, P.R. Ellis

**Other Uses:** A grey dye is obtained from the pink or red petals. The leaves also contain quercetin, a dyestuff that, when found in other plants, is much used as a dye. Wood - moderately hard, close and even grained. It is very good for walking sticks.

**Dye Recipe:**

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\begin{align*}
\frac{1}{4} \text{ lb tea} \\
\frac{1}{4} \text{ lb chrome-mordanted wool} \\
1 \frac{1}{2}\text{ gallons water}
\end{align*}
\]

Boil the tea for at least a half-hour. Strain out the plant material and add enough water to make 1 ½ gallons. Wool that has been mordanted with chrome will give the best color, a dark brown. Nonmordanted wool gives a warmer brown but may not be too permanent a color and alum gives a medium brown. Simmer the wool in the ooze for 30 minutes or so. Color: brown.

**Culinary Uses:** The leaves are infused in hot water and used as the drink that is commonly known as tea. It is widely drunk in many areas of the world. Green tea is made from the steamed and dried leaves, while black tea (the form most commonly drunk in the west) is made from leaves that have been fermented and then dried. Tea contains polyphenols, these are antioxidants that help to protect the body against heart diseases, stroke and cancer. Cold tea is sometimes used as a soaking liquid to flavor dried fruit and ham. The flowers are made into 'tempura' using the edible oil that is obtained from the seed. An edible oil is obtained from the seed. The oil needs to be refined before it is eaten. An essential oil distilled from the fermented dried leaves is used as a commercial food flavoring.

**Recipes:**

**Irish Tea Brack**
1 lb golden raisins
1 lb raisins
2 ½ cups brown sugar
2 cups black tea
2 cups Irish whiskey
heaped 3 cups all purpose flour
3 eggs, beaten
1 Tbsp baking powder
2 tsp apple pie spice

Soak the fruit with the sugar in the tea and whiskey overnight. Preheat the oven to 375. Add the flour, eggs, baking powder and spices to the fruit mixture. Mix all the ingredients together well and put in greased bread pans. Bake for 1 our. Allow to cool in the pan slightly before turning out to cool fully on a rack. (Irish Cooking)

**Jasmine Tea Rice and Snow Peas**
2 tsp sesame seeds
4 tsp loose jasmine tea
4 cups boiling water
2 cups jasmine rice or long-grain rice
½ tsp salt
½ lb fresh snow peas, trimmed
4 scallions (white and 2 inches of green), thinly sliced
½ carrot, minced
2 Tbsp seasoned rice vinegar

Dry-roast the sesame seeds in a small skillet over low heat for 2 minutes, or until aromatic. Set aside. Combine the tea and boiling water in a Pyrex bowl, cover, and steep for 5 minutes. Strain the tea into a saucepan. Add the rice and salt and bring to a boil over medium heat, stirring once. Cover, reduce the heat to low, and cook for 12 minutes, or until all the liquid has been absorbed and the rice is tender. Uncover and let stand until cooled. Steam the snow peas in a vegetable steamer set over gently boiling water for 3 minutes, or until tender but still crisp. Rinse with cold water and cut into ¼ inch diagonal slices. Combine the rice, snow peas, scallions, and carrot in a large serving bowl and mix well. Drizzle with the vinegar and toss to coat. Sprinkle with the
**Insidious Rum Punch**

2 quarts green tea, hot and very strong  
1 lb brown sugar  
1 quart fresh lemon juice  
2 qts dark Jamaican rum  
1 qt cognac  
2 lemons, thinly sliced  

Decorative ice ring  
Strain tea over brown sugar; add lemon juice, let sit overnight. Next day add rum, cognac and lemon slices. Pour into bowl over ice ring.

**Tea Pudding (Pudim de Cha)**

1 cup sugar  
4 eggs  
8 egg yolks  
2 cups very strong tea  
1 cup heavy cream, half-and-half, or milk  

Whisk together the sugar, eggs, and egg yolks just enough to blend. Stir in the tea and cream and strain through a fine sieve. Pour into 8 buttered custard cups or ramekins and place in a baking pan containing about 1 inch of water. Bake in a preheated 350°F oven until a toothpick inserted halfway between the edge and the center of the pudding comes out clean, about 45 minutes. Cool to room temperature before chilling thoroughly. Serves 8.

**Green Tea Ice Cream**

2 cups heavy cream  
1 cup whole milk  
1/4 teaspoon salt  
6 large eggs  
2/3 cup sugar  
2 tablespoons matcha (powdered Japanese green tea)  

Special equipment: an ice cream maker  

Bring cream, milk, and salt to a boil in a 3-to 4-quart heavy saucepan and remove from heat. Whisk together eggs, sugar, and matcha in a bowl (tea will not be completely dissolved), then add 1 cup hot cream mixture in a slow stream, whisking vigorously. Whisk custard into remaining cream mixture in saucepan and cook over moderately low heat, stirring constantly with a wooden spoon, until thick enough to coat back of spoon and registers 170°F on an instant-read thermometer (do not let boil).

Immediately pour custard through a fine sieve into a metal bowl, then cool to room temperature, stirring occasionally. Chill, covered, until cold, at least 1 hour.

Freeze in ice cream maker, then transfer to an airtight container and put in freezer to harden.

**Reference:**

- *Plants for a Future Database*