

Decaffeinated Coffee

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Decaffeination is the act of removing caffeine from coffee beans, cocoa, tea leaves and other caffeine-containing materials. Despite the removal of caffeine, many decaffeinated drinks still contain around 1-2% of their original caffeine content.

In the case of coffee, various methods are used to remove the caffeine. The process is usually performed on unroasted (green) beans and begins with steaming the beans. They are then rinsed with a solvent that extracts the caffeine but leaves the other essential chemicals in the beans. The process is repeated from 8-12 times until it reaches one of two standards: the international standard of removing 97% of the original caffeine, or the EU standard of removing 99.9%. Coffee contains over four hundred chemicals important to the flavour and aroma of the final drink; it is not easy to remove only the caffeine while the other chemicals remain in their original concentrations.

Coffea Arabica normally contains about half the caffeine of *Coffea robusta*, and a *Coffea arabica* variety with a particularly low caffeine content was discovered in Ethiopia in 2004.

Almost all brands of decaffeinated coffee contain a minimum amount of caffeine. Consumption of five to ten cups of decaffeinated coffee per day may deliver as much caffeine as drinking one or two cups of regular coffee, according to scientists at the University of Florida. In one independent study of 10 decaffeinated coffees, researchers found that nine contained amounts of caffeine ranging from 8.6-13.9 mg per 473 ml cup, while another study found that caffeine content in popular decaf brands ranged from 3 -32 mg per cup. Both studies tested the caffeine content of store-brewed coffee, therefore it is possible that the caffeine detected may be residual from the regular coffee served, and not from poorly decaffeinated coffee.

Consumption of the decaffeinated variety appears to be as beneficial as the normal variety of coffee with regard to all-cause mortality, according to a recent large study. In women, the consumption of decaffeinated coffee significantly decreases all-cause mortality, with an odds ratio between 0.8 and 0.9 with a consumption ranging from 1 to 6 cups per day. In men, the beneficial effects do not appear to be so great, but there is still a tendency towards significantly lower mortality for men who drink more than 2 cups of decaffeinated coffee per day in comparison with those who drink less than one cup per month.

Another way of producing decaffeinated coffee consists of using coffee beans that do not contain caffeine. The term "Decaffito" has been coined to describe this type of decaffeinated coffee and registered as a trademark in Brazil. The prospect for this type of coffee originated when the naturally caffeine-free *Coffea charrieriana* was discovered in 2004. This *Coffea Arabica* plant has a deficient caffeine synthase gene, so that it accumulates theobromine instead of converting it into caffeine like other coffee plants. One possibility for the future of caffeine-free coffee beans is to breed this gene into other coffee plants by crossing them with *C. charrieriana*. Alternatively, the equivalent effect could be achieved by knocking out the gene responsible for caffeine synthase in normal coffee plants.

A Match the underlined words in the text with their meanings below.

- | | | |
|--------------------|----------------------------|-----------------------------|
| 1. invented | 6. made in a shop | 11. introduce and reproduce |
| 2. suppressing | 7. cooking in water vapour | 12. fifty percent |
| 3. protected brand | 8. give | |
| 4. about | 9. washed in water | |
| 5. normal | 10. done | |

B Are the following statements **TRUE** or **FALSE**?

Correct the false statements.

1. Some decaffeinated drinks may contain small amounts of caffeine.
2. Coffee beans are steamed to remove the caffeine.
3. A solvent removes essential chemicals from the beans.
4. International standards allow more caffeine in decaffeinated coffee than the EU.
5. *Coffea arabica* contains more caffeine than *Coffea robusta*.
6. Researchers in Florida have studied caffeine and coffee.
7. People who drink decaffeinated coffee live longer.
8. Research on naturally caffeine-free coffee started in 2009.
9. *Coffea charrieriana* was created by scientists in Brazil.
10. Scientists may use it in the future to modify other coffee plants.

C Change the following sentences from *Active* to *Passive*.

1. Solvent removes caffeine from coffee beans.
2. People drink coffee all over the world.
3. Somebody discovered a new coffee plant.
4. They registered the Decaffito trademark in 2006.
5. Scientists have silenced the caffeine-producing gene.
6. They have developed caffeine-free coffee beans.
7. Florida University researchers are studying coffee plants.
8. People are analyzing the caffeine content.
9. They will improve this new variety.
10. Drinking caffeine-free coffee can reduce mortality.

D Put the articles into the text about instant coffee: a/an - the - Ø (no article)

INSTANT COFFEE

When coffee arrives at instant coffee factory, it has already been roasted and ground. In factory, water is slowly passed through coffee, and thenresulting liquid is repeatedly pumped through tubes at very high temperature and pressure. This makes some ofwater evaporate, leaving very strong “coffee liquor”.

To make instant coffee powder, coffee liquor is poured throughlarge cylindrical driers at 250°C. heat evaporates liquid and leavesinstant coffee powder which is collected and put intoglass jars.

Granulated coffee is made by freeze-drying coffee liquor rapidly intoblocks. After these are broken up into small pieces, they are dried in vacuum. This removes water without heat, leavinginstant coffee granules.