



## Ethnobotanical Leaflets



### Coffee: Before It Was Good to the Last Drop

By Heather F. Curry

A beverage that is consumed today by millions of people worldwide started off life with rather humble beginnings. This beverage is coffee. "Coffee", which comes from the Latin *Coffea*, is a member of the Rubiaceae family. This family includes more than 500 genera and 6,000 species. However, for ethnobotanical purposes, only 2 species are cultivated for world consumption. These are *Coffea arabica* and *Coffea canophora* variety *robusta*.

#### History

This history starts off with a legend that takes place around 800 CE. In this legend we have an Ethiopian goat herder named Kaldi. Kaldi was out tending his herd of goats one day, when he noticed some of the goats were eating these bright red berries on some nearby shrubs. After consumption of the berries, the goats began to frolic about playfully and dance with great vigor.

Kaldi wondered why his goats were behaving the way they were, and decided to sample the cherry-like berries with the seeds for himself. He himself was then overwhelmed by a feeling of exhilaration and was frolicking with his flock. Afterwards, some say Kaldi himself went on to tell others about his discovery. Others say a monk who was nearby had witnessed the goings on and decided to pluck a few berries for himself and took them back to be shared with his brothers-- thus the monastery experiencing extreme alertness to "divine inspiration" ([britannica.com](http://britannica.com); [nationalgeographic.com](http://nationalgeographic.com); [oberlin.edu](http://oberlin.edu)).

Regardless of this wonderful story, the facts known about coffee's history state that the tree/shrub was first used in Ethiopia around that same time (800 CE). However, it was not used as a beverage. That use would come later. Ethiopian peoples, such as the Galla tribe, harvested the berries, ground them up and mixed them with animal fat or butter. This mixture they would then round up into balls. These balls were then eaten, usually on desert journeys, to provide stimulation and food (Baker, 110; Flandrin, 386-7; [nationalgeographic.com](http://nationalgeographic.com); [oberlin.edu](http://oberlin.edu)).

At around 1000 CE, Arabian traders coming home from the Ethiopian highlands, crossed the Red Sea

and brought coffee back to their homeland. Thus began coffee's first domestication. They cultivated the plant on the first plantations, and used the plant by separating the seed from the fruit, roasting it, grinding it with mortar and pestle, and then adding boiling water to the grounds. This was drunk frequently by Sufi and other Muslims to help keep them awake during nocturnal prayers. The beverage started off under religious pretenses, but then it soon gave way to more secular delights (Baker, 110; Flandrin, 386-7; nationalgeographic.com; oberlin.edu).

The Arabs wanted to maintain the coffee production monopoly that they had, but because of the increasing popularity, this did not last. The Turks, who had obtained coffee from the Arabs in the middle 1400's gave coffee to Italian traders who had come to the middle east. They took the coffee back with them to Europe, and the monopoly on the coffee market was lost by the Arabs around 1600 CE (Baker, 110; Flandrin, 386-7; nationalgeographic.com; oberlin.edu).

From 1615 to 1700 CE, coffee spread throughout Europe. Coffeehouses popped up all over the continent: Italy, France, England, and Germany. These houses became places for the gathering of social and culturally elite people, then every sect of humanity started meeting at local coffeehouses. They became more than places to sit, relax and enjoy a cup of coffee. They became a hotbed for social and political information and discussion. So serious were local coffeehouses taken by the public, that in 1675 CE, when King Charles 11 of England tried to suppress the public coffeehouses, the outcry was so great that he revoked his proclamation 11 days later (Baker, 110; Flandrin, 386-7; oberlin.edu).

However, Europeans were not just satisfied with being consumers of coffee. European merchants wanted a means of production, as well. The race for production was on, and led by the Dutch, The Dutch smuggled coffee trees out of the Arab port of Mocha, and successfully started their own European-owned coffee plantations in Ceylon (Sri Lanka) and Java. Business increased, and as tokens of "good faith", it was not unheard of for the Dutch to bestow gifts of coffee trees grown on their estates and send them to wealthy aristocrats back in Europe (Baker, 110; Flandrin, 386-7; nationalgeographic.com; oberlin.edu).

For a long while, Ceylon was the leading coffee producer in the Indian Ocean. Unfortunately, during the 1800's, a coffee fungal disease called "leaf spot" caused by *Hemileia vastatrix* devastated the monoculture crop and it has never recovered. The country switched to producing tea, and has not gone back to coffee as a major cash crop (Baker, 111; Robbins, 375).

In 1714, the Dutch were still maintaining prosperous coffee crops in Ceylon and Java, and the gift of a coffee tree was sent to France's King Louis XIV. It was put in the *Jardin des Plantes* in Paris-- the Royal Botanical Garden. Navel officer Gabriel Mathieu de Clieu, on leave to Paris from Martinique, asked the King to be allow to transport clippings of the coffee tree to Martinique to establish a "French Java." The king denied permission, so the officer stole a clipping and made a perilous journey back to Martinique. Around 1720, he successfully transplanted the clipping and kept it under armed guard. Within 50 years, the clipping yielded an extended family of 18-19 million trees. These trees would be the trees that would supply Latin America (Baker, 110; Flandrin, 386-7; nationalgeographic.com; oberlin.edu).

Brazil wanted a share of the coffee market, and by 1800 they became the leader in the world's coffee production. An "old world" plant successfully became a new world cultivar (nationalgeographic.com).

## **Cultivation**

As stated before, there are 2 species that are cultivated for the world's coffee. The first and most important species cultivated is *Coffea arabica*. This species is the most used, and accounts for 70% of the world's coffee. It is what is used in all fine quality coffees around the world. The remaining 30% is produced from the cultivated species *Coffea canophora* variety *robusta*. This coffee is not as good a quality as the arabica, and is used often in mass-market and highly processed coffee (botany.com; coffeescience.org; Hylander, 234; oberlin.edu; Robbins, 372).

The plants themselves are rather unique. They consist of small and thin evergreen trees or shrubs with glossy, tough, bright, dark green leaves that range from 4 to 10 inches in length. On these trees fragrant, 5-parted, white flowers in clusters appear. Later, these flowers give way to fruits that are fleshy, green, and contain 2 seeds. As these fruits ripen, they turn a bright red (botany.com; Hylander, 235; oberlin.edu; Robbins, 372).

The tree is specific about its growing conditions. It will only flourish in fertile soil in a hot, moist climate-- a.k.a. tropical to sub-tropical. Too much sunlight is not good for this natural understory tree. It needs some shade in order to survive and prevent scorching from the sun (Hylander, 235; oberlin.edu; Robbins, 375).

Trees grown from seed are planted 6 feet by 6 feet apart. To add the necessary shade, some plantations will intersperse shade trees such as Senna among the coffee trees. When the trees reach the age of 3 years, they begin to bear fruit and seeds. However, the time for best yield of coffee seeds is from age 5 all the way up to 25; some places even harvest trees that are up to 40 years old.

Care must be taken every step of the way to insure and protect the crop from damage caused by the parasitic fungus responsible for the aforementioned "leaf spot" disease. This requires pruning, destruction of diseased plants, abundant spacing between planted trees, and other sanitary measures. Hybridization to insure disease resistance is also put into practice (Hylander, 235; Robbins, 375).

## **Processing**

The tree is bearing bright red "coffee cherries," so what needs to be done next? The following is the processing of coffee, starting from its beginnings as that cherry on the tree.

First, the bright red cherries are picked. This is usually done by hand. Some places have also placed mats or canvas around the base of the trees, and then shaken them to harvest the berries. Others just let the ripened fruits fall to the ground, and pick them up from there (Baker, 109; britannica.com; Hylander, 235; oberlin.edu; Robbins, 375).

Next, the cherries are washed and then the seeds inside are removed from the fleshy fruit covering by one of 2 methods: the wet process or the dry process. During the wet process, machines remove the fruity pulp of the outer covering, exposing the beans inner coating of parchment. The beans are then soaked and allowed to ferment in large tanks in order to loosen this parchment layer. Once loosened, the coverings are washed away with water and the beans are cleaned, dried in either the sun or another machine, and then put in a hulling machine to remove any remaining coverings (britannica.com; oberlin.edu; Robbins, 375-6).

The dry process involves spreading the coffee cherries thinly out on mats or drying ground, where they are raked and turned to allow for even drying in the sun. This process can take more than 2 weeks. Once the cherries are dry, they are then put through the hulling machines which remove all seed coverings (britannica.com; oberlin.edu; Robbins, 375-6).

After the processes are completed, the raw (green) coffee beans are inspected to remove any defective beans, either by hand or by machine, then they are polished, packaged, and shipped off to be roasted (Baker, 109; britannica.com; Hylander, 235; oberlin.edu; Robbins, 375).

Roasting takes on many different characteristics, but the main way of roasting the beans is by special roasting machines. These machines can be set up so roasting the beans can be done at a variety of temperatures and durations, giving the desired coffee its specific flavor, aroma, balance, and chemical compositions. This is what makes the coffee beverage what it is. It also the process that makes the caffeine, a white crystalline powder with stimulating characteristics, more viable (Baker, 110; britannica.com; Hylander, 236; oberlin.edu; Robbins, 375).

The caffeine content of roasted coffee seeds is approximately 1% of their dry weight. Some have been as high as 2% (Baker, 110; Hylander, 236; oberlin.edu).

After the roasting process, all that needs to be done to the bean to produce the drink enjoyed around the world, is grind it according to the drink style one will consume. Add hot water to these grounds, and one who enjoys a good cup of coffee will agree that no matter where the beans came from, how they were cultivated and processed, or what style of the beverage one is consuming, it is definitely "Good to the last drop." (TM)

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