

Decaffeination

Brief History of Decaffeination

Year	Event
1820	Caffeine was discovered.
1879	Supercritical extraction concept.
1903	First decaffeination method: organic solvent extraction.
1906	Commercial decaffeinated coffee: Kaffee HAG.
1933	Activated charcoal for caffeine adsorption: towards water process.
1943	First attempts to avoid organic solvents in decaffeination: indirect method.
1965	Supercritical CO ₂ application for decaffeination
1979	Swiss Water process
1980s-2000s	General improvements in all three methods.
Mid 1990s	Genetic engineering in coffee plants began.
2003-2005	Discovering, isolation and silencing of certain genes related to caffeine biosynthesis.

Decaffeination is the act of removing caffeine from coffee beans, cocoa, tea leaves and other caffeine-containing materials.

The main steps are:

- Swelling the beans (usually raw) with water in order to solubilize caffeine.
- Extracting caffeine from beans with a variety of different solvent.
- Regenerating caffeine adsorbents .
- Drying the decaffeinated bean until reach initial moisture content.



Extracting methods varies widely:

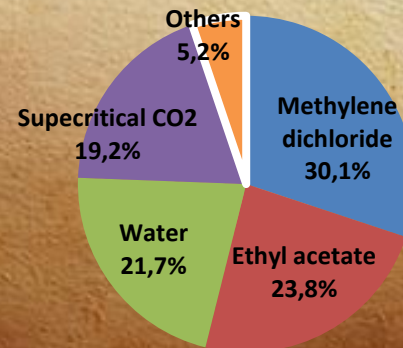
- Organic solvent extraction such as methylene dichloride or ethyl acetate.
- Supercritical CO₂ extraction.
- Water extraction.
- Others.

Genetic transformation

- Due to crop requirements and longevity, it is difficult to success in a natural breeding process.
- Genetic engineering for decaffeinated coffee in process.
- Results expected in long term.

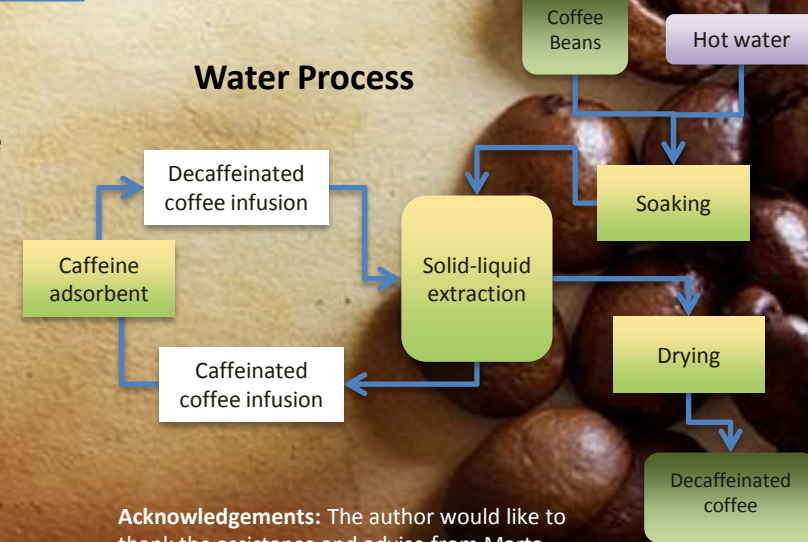


Decaffeination methods worldwide



Source: Coffee, recent developments, 2001

Water Process



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