

Abstract

# Designing Coffee for Health <sup>†</sup>

Adriana Farah 

Nutrition Institute, Federal University of Rio de Janeiro, Rio de Janeiro 21941-902, Brazil; afarah@nutricao.ufrj.br; Tel.: +55(21)39386449

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**Abstract:** The first scientific reports on coffee and health date back to the 16th century. Since then, coffee has been prescribed by physicians and used for several purposes, although controversies about its positive or negative effects on health were always present. Despite numerous attempts to decrease coffee's popularity, favorable opinions have invariably predominated. In recent decades, besides the stimulatory effects of caffeine, regular coffee drinking has been linked by epidemiological and clinical studies and meta-analyses to a reduced incidence of degenerative diseases such as type 2 diabetes, Parkinson's, Alzheimer's, liver diseases, different types of cancer, and stroke. These effects derive mainly from the antioxidant and anti-inflammatory properties of the beverage, associated with additional properties, all jointly exerted by several active compounds, including caffeine, chlorogenic acids, quinolactones, and minor phenolic compounds, trigonelline, *N*-methylpyridinium, nicotinic acid, diterpenes, phytosterols, fibers, and melanoidins, among others. Like many herbal medicines, however, coffee drinking has potential adverse effects involving natural and incidental compounds, including those produced during roasting. These effects can be minimized through the conscious use of pesticides, practices to avoid mold contamination, intelligent roasting, selective brewing methods, and several technological processes. In the same way, the presence of major beneficial compounds can be maximized from field to cup.

**Keywords:** coffee and health; chlorogenic acids; caffeine; trigonelline; stomach discomfort; acrylamide; mycotoxins; hypercholesterolemia; type 2 diabetes



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