

Sweet dreams are made of cheese

Who am I to disagree?

nutmeg, if consumed in large enough quantities, can have powerful psychoactive effects providing a type of intoxication similar to the combination of alcohol and marijuana. Scientific studies show that ginseng is a safe and easy way to boost energy and some varieties such as Korean Red ginseng can so affect the levels of nitric acid in the body that it can increase blood flow including in the vaginal tissues resulting in enhanced sexual pleasure for women. Eating just two pieces of poppy seed cake will produce a positive result in drug tests as morphine will be detected in urine; repeated consumption of poppy seed tea can lead to morphine tolerance, dependence and finally addiction. Consumption of various species of fish can provide powerful hallucinations similar to LSD. While some of the 500 natural chemicals in a single piece of chocolate may have a psychotic effect on humans, the current state of the science is inadequate to support chocolate's aphrodisiac claims. These are just a small sample of the many interesting insights contained in Professor Massimo Marcone's latest book, *The Psychopharmacology of Legal Psychoactive Foods* (Nelson, 2014).

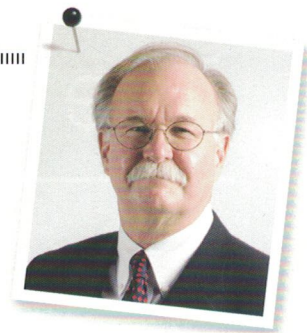
While modifiers of consciousness such as morphine are regulated by governments, society permits its citizens, whether by legislation or default, to use legal psychoactive substances such as



caffeine, alcohol and nicotine. As it turns out, many other common and legal foods can also have major psychoactive effects. As in his earlier book, Marcone, a University of Guelph food chemist, explains in layman's language the science of how so many common foods that contain chemicals that can cross the blood-brain barrier can produce profound effects on our central nervous system.

Marcone tells the story of Vin Mariani, a Bordeaux wine containing both cocaine from coca leaves and caffeine from kola nuts, a beverage that became so popular at the turn of the 20th century that it was strongly endorsed by Pope Leo XIII, Pope Saint Pius X, and U.S. President William McKinley. It was widely used by such notables as Sigmund Freud, Thomas Edison, H.G. Wells, Jules Verne and Queen Victoria. All major opera singers of the time used this "tonic," as did the kings of Norway and Sweden. Widely recognized as the precursor to John Pemberton's Coca Cola, millions of bottles of Vin Mariani were sold before the U.S. banned cocaine in 1914.

Marcone devotes a chapter to the fascinating history and chemistry of the once highly popular absinthe, an alcohol distilled from wormwood, green anise and fennel. When consumed in large quantities, absinthe produces profound hallucinogenic effects because it contains the chemical thujone, which is similar to the THC found in cannabis. His chapter



on the chemistry of chili peppers, our second most popular spice, reviews their remarkable endorphin-producing capability and concludes that chili peppers have significant medicinal potential.

Apologies to the Eurhythmics aside, what's this about sweet dreams and cheese? Most varieties of cheese, including Stilton, Danish Blue, and aged Cheddar, contain a chemical called tyramine which acts as a dopamine. This causes the release of another chemical (norepinephrine) that increases the amount of time that is spent in deep sleep. Cheese also contains high levels of the relaxant tryptophan, which contributes to a natural high. Moreover, the bacterial and fungal cultures in ripe cheeses produce large amounts of biogenic amines with high psychoactive properties. According to the science summarized by Marcone, really vivid dreams can be induced by consuming a mere 20 g just before bedtime. A 2005 study commissioned by the British Cheese Board revealed that blue veined cheeses such as Stilton can produce particularly powerful and bizarre dreams. My own study conducted with a group of friends provides rich anecdotal data for the effect of Stilton cheese on sleep.

Most food chemistry articles are either turgid academic papers inaccessible to lay readers or the superficial pap that passes as "scientific" writing in the popular press. Again, my friend Massimo has found a way to make food chemistry interesting without compromising good science. We need more of this. ●

Ronald L. Doering, BA, LL.B., MA, LL.D., is a past president of the Canadian Food Inspection Agency. He is counsel in the Ottawa offices of Gowlings. Contact him at Ronald.doering@gowlings.com