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Nutritional and Medicinal Guide to Hemp Seed **by Kenneth Jones**

Ancient Chinese Prescriptions

Clinical use of Ma Zi (hemp-seed plant), a plant grown mainly for its seed, extends deep into the history of Chinese medicine. During the Ming dynasty (AD 1368-1644), a major section of the great pharmacopoeia of China, the Pen T'sao Kang Mu, was devoted exclusively to hemp seed. It was said to have a "calming" influence on the physiology and the hemp plant itself was placed in the category of "Superior" or higher types of medicine. This means that it is inherently non-toxic and can be taken for long periods of time or indefinitely. The most recent English translation of this section reveals precious formulas used for centuries by common folk and royalty alike. The complete text is certain to become a treasured contribution to many important facets of current hemp research.

"The Ancients used this medicine to remain fertile, strong and vigorous . . ."
from Pen T'sao Kang Mu

The compiler of the Pen T'sao Kang Mu, Li Shih Chen, recounted passages from older works that had discussed the subject of hemp in terms of food and medicine. Li provided a balance of the available knowledge while clarifying matters that had remained in debate or that had never been carefully considered before. From the mass of information he acquired, it was obvious that in ancient times some varieties of hemp were readily distinguishable, even though ma zi (hemp-seed plant) grew throughout the country. One variety, which produced seeds the size of garden peas, was held to be of "the highest quality." It had originated on Mao Luo Island in the Eastern Sea where the seeds it bore were as large as lotus seeds.

One of the more interesting recipes in the Pen T'sao Kang Mu is found with the self explanatory title of "Formula to Build Up an Age-Enduring Supply of Beneficial Qi" (Nai Lao Yi Qi). Taken to assuage hunger for long periods, the formula consisted of hemp seed (2 liters) and soybeans (1 liter) boiled together and then fried slowly "until they become a dried powder." The powder was rolled in honey as a binder and made into pills to be taken twice a day.

Edestin, the Main Protein of Hemp Seed

The total protein content of hemp seed is about 65% "edestin" protein. Described as a "sturdy" protein, pure, easy to prepare, and highly stable, edestin has a molecular weight of about 300,000 and is classified as a globulin type of protein, meaning that it is soluble in dilute salt solutions and that it readily becomes changed by heat. At ordinary room temperature, edestin extracted from heat-treated hemp seed is insoluble, but has a fairly

high rate of stability at high temperatures. At a pH of 5.8 to 7.8, edestin doesn't coagulate, even after exposure to a high temperature (100° C).

Hemp Seed Oil

A nutritionally optimal ratio of two parts linoleic acid to one part linolenic acid (2:1) has also been noted in hemp seed oil, and the "ideal 3:1 ratio" is cited for oils to be used in the long-term. Either ratio can occur in hemp seed oil.

The body transforms linolenic acid into GLA by means of an enzyme (delta-6- desaturase), but many factors in our diet can impair this ability, including alcohol, processed vegetable oils, excess cholesterol, trans-fatty acids, and oils heated for cooking. Not surprisingly, common uses of flax seed oil are similar to those with hemp seed in Chinese medicine.

Linolenic acid has been studied in humans for cholesterol-lowering actions and repeatedly found effective. GLA, however, is more potent. Curiously enough, its "biological effectiveness" in evening primrose oil was demonstrably higher than in black current or borage oils. The other main area of EFA research is in psoriasis and eczema where improvements in skin smoothness have been repeatedly demonstrated with both seed and omega-3-rich fish oils. Studies with flax and hemp seed oils are expected to follow and may be extended to include clinical studies in the many other areas of EFA research, such as arthritis, hypertension, diabetes, cancer, gastrointestinal disorders, ulcers, chronic fatigue syndrome, lupus, and more.

Hemp Seed as Animal Feed

Until about 1948 the main use of hemp seed in the US was in feed for dairy and beef cattle. Most of the seed was imported from Manchuria and Russia. During the 1950's, hemp seed production in Russia, which averaged 250,000 tons, was twice that of Manchuria. But apart from what they exported, almost all other production was for use inside the country. Today, the best seed-producing varieties of Russian hemp can yield 1000 kg per hectare (892.5 lb. per acre).

When trade with these regions fell off following World War II, hemp seed utilization in the US came to a standstill. Even though yields in India in the 1950's were 1,200-1,500 pounds per acre in crops sown only for hemp seed, by the time the war ended the US didn't want to depend on any foreign supplies for feed ever again; they learned the hard way that if ever another major war should begin, an outside reliance on strategic materials would place the country in far too much risk.

In 1958, an authority on seed oils, J. A. Kneeland commented that one day, when trade obstacles would be removed, it would be interesting to see how new methods of processing might affect the nutritive value and digestibility of hemp seed meal. Today, with the recently renewed demand for hemp fiber for paper and clothing alone, the availability of hemp seed is expected to increase, thereby facilitating a greater array of hemp seed products with something for every kind of taste.

Kenneth Jones is a medical writer dedicated to the field of ethnobotany. This article is excerpted from Nutritional and Medicinal Guide to Hemp Seed. ©1995 Kenneth Jones. Published by Rainforest Botanical Laboratory. P.O. Box 1793 Gibsons, B.C. Canada