

The grand mother of the plant kingdom HEMP

What would you say if I told you that there is one plant that can serve most of the basic needs of mankind; food, shelter, clothing, fuel, but virtually no one in the 21st century is ‘legally permitted’ to grow it? Conspiracy? Perhaps.

The name marijuana rings a bell, doesn't it? That is the word used to propagandize the most useful species of the plant kingdom, the humble cannabis sativa, commonly called hemp. The conditioning is so complete that even the sight of a picture of the leaf creates an enormous impact in the average person's psyche. Generally, the most immediate response to an image of the hemp leaf is DRUGS. The connotation is negative. In order for hemp to make a resurgence into the modern world a new paradigm needs to be infiltrated back into the minds of ordinary men, women and children.

Since 2002 the Queensland government legalized hemp growing under license. I personally have been growing hemp and manufacturing products from the fibre and seed oil since that time. Even though I have been challenged with enormous difficulties and seemingly insurmountable ignorance, the importance of establishing hemp as a crop far outweighs the opposition.

In the last year I've attended several shows and functions addressing the general public. Interestingly, many young people are actually afraid to even try hemp oil on their skin. They ask questions like, ‘will I get stoned?’ If I smoke this T-shirt will I get high?’ They only recognized the leaf as an illicit substance not a plant that represents useful, practical end uses. The most common response from people who suddenly realize the full import of hemp as a commercial crop is “Why isn't everyone growing it?”

How could something so good become so bad?

The purpose of this article is not to cover the political position and history of hemp in the last century, there has been enough coverage of that in the last few decades from cannabis activists. So now that we have gotten over that hurdle of growing the crop again let's focus on the next generation of the most positive outcomes and scenarios for realizing hemp as a common household term.

Being part of the natural world, hemp has been used by humans for millennia. Efforts have been made to wipe the species out but it is a tough survivor and let's hope it's back to stay.

If you like raw statistics, here goes:

The bark of hemp has the longest strongest fibre of all plants. Hemp can be made into any building material, including fibreboard, roofing, flooring, wallboard, caulking, cement, paint, paneling, particleboard, plaster, plywood, reinforced concrete, insulation, insulation panels, spray on insulation, concrete pipes, bricks, and biodegradable plastic composites which are tougher than steel.

-Ecologically sustainable hemp requires virtually no herbicides and pesticides to grow, builds humus and removes heavy metals in the soil and soaks up enormous amounts of carbon from the atmosphere.

“Every tonne of cellulose grown and used removes 1.5 tonnes of carbon dioxide. For example, if 200,000 hectares of hemp were grown (averaging a yield of 12 tonnes (dried stem matter) per hectare) 3.6 million tonnes of carbon dioxide would be removed (Katelaris, Dr. K., pers. comm., 4 May 1995). This would have obvious benefits for the greenhouse effect.

- Hemp is an extremely fast growing crop, producing more fibre yield per acre than any other source. Hemp can produce 250% more fibre than cotton with less water consumption and 600% more fiber than flax using the same amount of land. The amount of land needed for obtaining equal yields of fibre place hemp at an advantage over other fibres

-) "The anatomy of the stem of hemp is crucial to its quality as a raw material for paper. The bark contains primary bast fibres (about 20 mm long), and may contain secondary bast fibres (about 2 mm long). The core contains fibres 0.5 to 0.6 mm long" (as cited from Bosia 1976 in van der Werf 1994, p30). In comparison, the average fibre length for softwood (pine) ranges between 2.8 to 3 mm. The average fibre length for hardwood (eucalypt) ranges between 0.8 to 1 mm (Milburn-Clarke, K., pers. comm., 6 June 1995). Because of the extraordinary length of the bast fibres, as compared to the length of tree fibres used in Australia, bast fibres produce higher quality goods, such as paper and fabric.

Yield

One acre of hemp can produce as much paper as 4 -10 acres of trees over a 20 year cycle, but hemp stalks only take four months to mature, whereas trees take 20 to 80 years. This information was known in 1916, according to a USDA report. Hemp paper can also be recycled more often, though this fact is not of much value, since hemp is a renewable resource.

If all fossil fuels and their derivatives, as well as trees for paper and construction were banned in order to save the planet, reverse the Greenhouse Effect, and stop deforestation; THEN there is only one known annually renewable natural resource that is capable of providing the overall majority of the world's paper and textiles; meet all the world's transportation, industrial and home energy needs, while simultaneously reducing pollution, rebuilding the soil, and cleaning the atmosphere all at the same time . . . And that substance is the same one that did it all before. . . Hemp

Jack Herer's The Emperor Wears No Clothes

"Why use the forests which were centuries in the making and the mines which required ages to lay down, if we can get the equivalent of forest and mineral products in the annual growth of the fields?"--**Henry Ford**
Henry built his indestructible car using hemp fiber and other organic fibers.

SUPERIOR food

If all those uses of hemp weren't enough, to convince us of the practical applications of the hemp plant then the nutritional value of the hemp seed will. Hemp seed nutrition research has made the most astounding revelations in health sciences in the last few years and is poised to completely blow the doors off any old world thinking.

The nutritional aspects of hemp are unsurpassed. However due to the legal implications regarding ingesting hemp seed products (Australian legislation has not been passed to allow hemp seed products to be sold for human consumption) there is a general misunderstanding about hemp foods by the Australian public.

In most countries in East and West Europe, all of North America, even the United States where it is illegal to grow hemp, Russia, China, Nepal, South America, Middle east including many other countries in the world, hemp seed products are presently being used and in some countries have been used for millennia.

Technically, hemp seeds are classified as a nut or 'achene'. They have an outer sheath, a hard shell and an inner kernel. Some varieties contain up to 50% oil. Hemp oil is nature's most balanced oil for human nutrition (3:1 ratio of LA to LNA), in fact this oil could provide all our essential fatty acid (EFA) requirements for life due to the balanced 80% EFA content of the oil.

Hempseed oil is pressed from the seed of the [hemp](#) plant (i.e., non-drug varieties of [Cannabis sativa](#) L). The seed typically contains between 30-35% oil by weight, and is extremely high in [essential fatty acids](#). Cold pressed, unrefined hemp oil is dark to clear light green in color, with a pleasant nutty flavor. The darker the color, the grassier the flavour. Hempseed oil is manufactured from non-drug varieties of Cannabis sativa that contain no significant amounts of [THC](#), and is not psychoactive. This manufacturing process typically includes cleaning the seed to 99.99% before pressing the oil. There is no THC within the hempseed, however trace amounts of THC may be found in hempseed oil when plant matter adheres to the seed surface during manufacturing. The modern production of hempseed oil, particularly in Canada, has successfully lowered THC values since 1998.(Wikipedia)

Unfortunatley the urine sampling drug screening methods found in mines and other organizations are extremely sensitive to minute traces of THC . So using hemp seed products could jeopardize an employee's drug-free status. See this YouTube link for more on the drug issue. <http://au.youtube.com/watch?v=i6HESjH-Zsg>

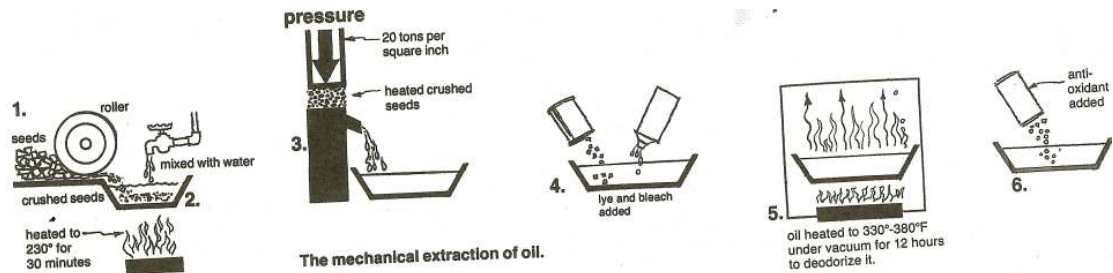
Hemp Seeds are a highly nutritious food, and contains anti-oxidants, protein, carotene, phytosterols, phospholipids, as well as a number of minerals including calcium, magnesium, sulfur, potassium, iron, zinc, and phosphorus. It is a source of complete protein and contains all twenty known amino acids, including the nine essential amino acids. It also contains Vitamins A, B1, B2,

B3, B6, C, D, and E. The green color in Hemp Seed Oil is a result of the high level of chlorophyll, which is naturally present in the seeds. If you stand a litre of oil in a clear bottle in the light, the colour will then appear purple probably due to the high beta-carotene content. All in all the richer the color the higher a nutrient value.

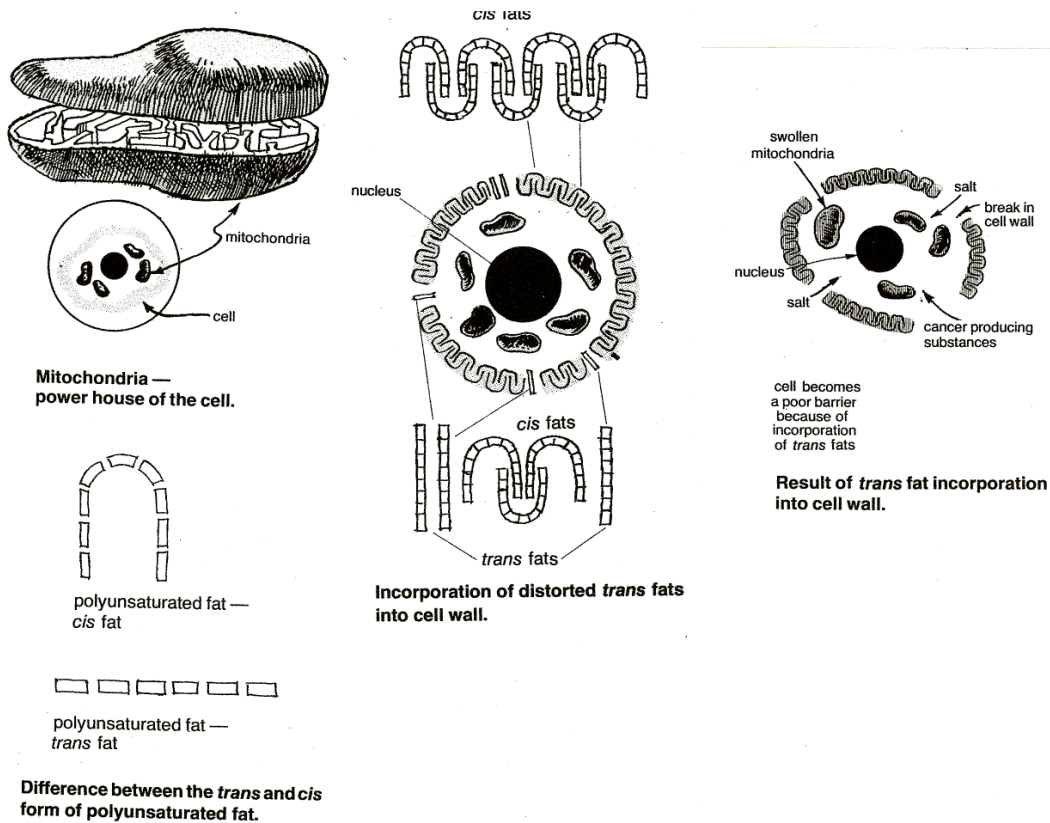
The proportions of linoleic acid and alpha-linolenic acid in one tablespoon per day (15 ml) of hempseed oil easily provides human daily requirements for EFAs. Unlike flaxseed oil, hempseed oil can be used continuously without developing a deficiency or other imbalance of EFAs. This has been demonstrated in a clinical study, where the daily ingestion of flaxseed oil decreased the endogenous production of GLA. People are more likely to consume hemp oil on a regular basis because it tastes better than flax which can go rancid and taste bitter far easier.

Highly unsaturated oils, and especially poor quality oils, can spontaneously oxidize and turn rancid within a short period of time when they are not stored properly; i.e., in a cool/cold, dark place, preferably in a dark glass (or even better metal) bottle. Hempseed oil can be frozen for longer periods of storage time, without a risk of breaking containers as it does not go solid due to its highly unsaturated chains. Preservatives (antioxidants) are not necessary for high quality oils that are stored properly.

Highly unsaturated oils are not suitable for frying, although rapeseed oil (canola), which is rich in omega 6, is a highly unsaturated oil that is commonly used in deep frying, primarily because of its low cost. Hempseed oil is primarily used as a food oil and dietary supplement. Heating can destroy the therapeutic value of the EFA's which is why most of the cooking oils on the supermarket shelves, which are processed under high temperatures, act as free radical agents. Their EFA's have been denatured to the point where they become trans fats or basically a toxin for which the body has little ability to cope.

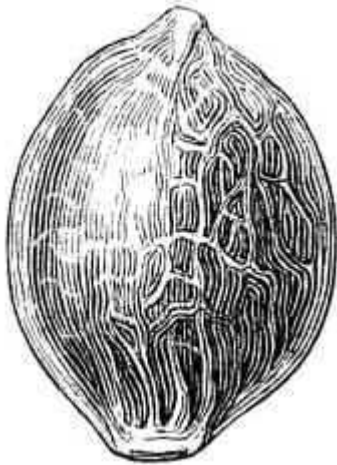


Ideally food oils should always be cold pressed and kept away from heat, air and light. According to Udo Erasmus light is 1000 times more destructive to EFA chains than oxygen. It would be wise to think twice about purchasing a food /cooking oil which is presented in a clear plastic or glass bottle which have been typically treated including margarines(as in the above diagram).As the old saying goes, "prevention is the best cure".



The ultimate way to obtain our necessary EFAs is the way nature provided them naturally encapsulated in the shell of the seed. HEMP seed oil is nature's most balanced oil for human nutrition (3:1 LA to LNA ratio) and is

easily digestible .In fact this oil could provide all of our essential fatty acid (EFA) requirements for life, due to the balanced 80% EFA content of the oil.



Cannabis seed, magnified

Essential Fatty Acids are necessary for our health, and are responsible for the lustre in our skin, hair, eyes, transferring oxygen to the every cell in our body, and even the clarity in our thought processes. They also lubricate and clear the arteries, strengthen the immune system, and help prevent viruses and other threats to our immune system. Essential Fatty Acids are not produced by the human body. Instead, they must be obtained from food sources.

Recently the United Nations international narcotics control body tried to implement a ban on the production of hemp seed for human nutrition throughout Europe. Their reason for the proposed UN change in legislation was that “hemp seed has no nutritional value” and “is a benign way of introducing drugs to minors”. Fortunately Hemp Union Ltd. From the UK lobbied the EU commission and the UK government and the proposal was withdrawn.

Here in Australia even though most of the states are now issuing industrial hemp licenses, the legislation for using hemp seed products as a food source for human beings is still in limbo. Previous applications toward this end have been met by rejection from the Howard government and the police. Funnily every other scientific body that assessed the application on hemp food in

nutrition could see no reason to withhold hemp seed products as a food source for general human consumption.

See Australian food standards position on the subject.

<http://www.foodstandards.gov.au/newsroom/factsheets/factsheets2001/industrialhempasafoo1302.cfm>

The graph below which has been extracted from world renowned researcher Udo Erasmus excellent book Fats That heal Fats that Kill ISBN0-929470-38-6 you can see that hemp seed oil is at the top of the list as THE most beneficial oil. Not only does it contain a perfect balance of omega 6 to 3, it contains a portion of GLA , gamma linoic acid commonly found in evening Primrose oil, Palmitic acid (16:0) commonly found in tropical oils and a low level of stearic acid (18:0) which is good while this works against the benefits of EFA's.

Seed type	Oil content (%)	Fatty Acid composition (% of total oil)					
		Omega 3	Omega 6	G.L.A.	Omega 9	18:0	16:0
Hemp	35	20	58	1.8	12	2	6
Flax	35	58	14	-	19	4	5
Soybean	18	7	50	-	26	6	9
Wheat germ	10.9	5	50	-	25	18	
Evening primrose	17	-	72	9	11	2	6
Sunflower	47	-	65	-	23	12	
Olive	20	-	8	-	76	16	

Most Beneficial Oils

Least Beneficial Oils

VITAMINS: are also present notably C., E., B1, B2, and carotene in a fat, soluble easily digestible form. Vitamin E acts as a natural antioxidant. On that note in regards to the peroxide value which is the measurement of susceptibility to oxidation, hemp averages at 7 whereas flax is much more sensitive coming in at 2 due to the high omega-3 count. Olive oil is much higher rating at 20. So hemp is somewhere in between in stability probably because of its natural antioxidant content.

PROTEIN -although hemp seed is far more nutritious than soybean in virtually all respects and as versatile, the typical reaction to hemp is a food is that it has limited applications. Coming in at anywhere from 30 to 35% complete protein, that is ALL of the Essential amino acids, hemp seeds actually are

twice the protein of most meat products. The other notable feature is the quality of the protein, which is classified as edistine the easiest to digest. Hemp seeds are ideal for vegans and vegetarians. One kilogram would provide all the protein, essential fatty acid and dietary fiber necessary for human survival for one month. Unlike soy, which is not even classified as a food in Ayurvedic medicine. In simple terms soy should not be an option for human consumption but only as a nitrogen fixing crop in repairing soil. Personally I would not even give it to livestock as it creates too many sensitivities in the gut. See the Internet for many links on soy. Hemp on the other hand the nutritional profile of hemp makes it ideal for poultry and all other livestock.

Following is a list of some of the conditions for which hemp seed and or oil has been known to assist: constipation, hemorrhoids, dry skin and hair, low metabolism, general weakness and low energy, tuberculosis, H. I. V. virus, immune deficiency, irregular hormone levels, diabetes, eczema, psoriasis, acne, menopause, cancer, multiple sclerosis, rheumatoid arthritis, P.M S., high cholesterol, high blood pressure, obesity, poor circulation, cardiovascular disease, Crohn's disease, gallstones, ADD, kidney degeneration. Using this high EFA source in the diet supports the body in scavenging BAD fats and cleaning the arterial walls while increasing tone and flexibility in the veins and capillary membranes.

“Health does not consist merely of the absence of symptoms of illness. It is a state of positive well-being that is evidenced by a constant state of euphoria that is rarely if ever experienced by humans today” Dr Herbert M Shelton

The HEALTH BENEFITS of getting EFAs are numerous and far-reaching. Here are various extracts from Fats that Kill, by Udo Erasmus. EFAs keep membranes fluid. Their tendency to disperse gives biological systems the power to carry such substances as toxins to the surface of the skin, intestinal tract, kidneys or lungs, where these substances can be discarded. EFAs govern growth, vitality and mental state. EFAs pull oxygen into the bloodstream via the lungs and heart and supply oxygen to the cells for

electron transport and energy in the process of oxidation. Oxidation, the central and most important moment to moment living process in our body, is the burning of food to produce the energy required for life. EFAs are involved in transporting oxygen to all our cells. They can be likened to oxygen magnets or sponges that pull oxygen into the body. A high oxygen content ensures immunity to viruses, fungi, and bacteria. EFAs shorten the time required for fatigued muscles to recover after exercise. They facilitate the conversion of lactic acid to water and carbon dioxide. They increase metabolic rate and burn more fat into carbon dioxide, water and energy sometimes resulting in weight loss. A balanced intake of EFAs produces smooth, velvety skin, increases stamina, speeds healing, increases vitality, and brings a feeling of calmness. Linolenic-acid and its derivatives can lower cholesterol by up to 65%. It reduces inflammation, water retention, platelet stickiness and blood pressure. It also inhibits the growth of humorus and enhances some immune functions, reduces pain and swelling of arthritis, and reverses premenstrual syndrome in some cases. It has been known to kill malaria and has been used successfully to treat bacterial infections. There is no better food for a healthy heart strong brain.

Used in COSMETICS body care products, hemp seed oil is antimicrobial, anti-inflammatory, anti-aging, balances skin pH and moisture levels, helps heal skin lesions, and has antioxidant properties. The texture of hemp oil is super emollient because of the loose bonds in the EFA chains. The oil is not greasy, and readily absorbs into the pores to feed the cells topically.

Hemp Seed Oil may be added to any bodycare or cosmetic product, including creams, lotions, facial or body oils, massage oils, shampoo, conditioner, shaving products, lip balm, soap, and any other product. In hair care products, Hemp Seed Oil increases elasticity, manageability, and shine while moisturizing the scalp.. In addition, recent Canadian research has shown this oil to possibly be effective as a broad-spectrum ultraviolet skin protector.

Why have fats become so very significant today? The whole secret of EFAs was discovered and pioneered by a brilliant scientist, biochemist named Dr.

Johanna Budwig. Back in the 50s she discovered through paper chromatography how to differentiate different fat structures. She noticed that within the bloodstream of a sick person, say with cancer, that the nature of the lipids would be altered and appear a different color when seen through a microscope. These were the first clinical studies of the effect of EFAs on the human organism. She found by saturating the diet with a high volume of the EFAs combined with sulfur amino acids, the weakened condition of the blood would right itself and miraculously the disease symptoms would disappear.

At the international Congress of nutrition in Paris in 1957, 900 expert delegates from countries worldwide heard that the latest research results, and the Cancer research Institute in Paris the only research Institute equipped with the largest state of the art electronic microscope in existence showed that the only substance which characterized the cancerous cells, as opposed to healthy ones, was isolated fat; the formation of fat in the cell nucleus, cell body and cytoplasm. (Flax oil as a true aid for arthritis, heart infarction, cancer and other diseases pg. 4 Dr. Johanna Budwig) (that would be denatured fat which lost the ability to hold oxygen , authors note)

In growing cells, we find a dipolarity between the electrically positive nucleus and the electrically negative cell membrane with its highly unsaturated fatty acids. When the cell divides, it is the cell nucleus which begins this. The cell body and the daughter cell are then separated and tied off by the diploid membrane. When a cell divides its surface area is larger and must, of necessity, contain enough material in this surface with its fatty acids to be able to divide the new cell completely from the original. Normal growth is always distinguished by a clearly defined course of action. In all our skin and membranes, in that of adults too there are continual growth processes. The old cells have to be shed with new ones being formed underneath. When this process is interrupted, it means the body is beginning to die. She goes on to say, "the fats which are alien to the body block the metabolism of other fat in the delicate glands, capillaries and filters stations. Such solidified , heat treated oils Must be avoided. (Flax oil as a true aid for arthritis, heart infarction, cancer and other diseases page 12-17 Dr. Johanna Budwig)

Dr. Budwig goes on to postulate that we are in fact antennae of sunlight and that the electrons in our food serve as the resonance system for the sun's energy. Without the electron rich seed oils in our diet we are doomed to go backwards.

USAGE The delicious nutty taste of hemp seed oil makes it easy to adapt to many recipes. In 1 tablespoon we would receive 2.5 g of omega 3 fatty acids, 8 g of omega 6 and 2 g of omega 9 fatty acids-a perfect balance. No other single source oil has this ideal combination of in the EFA's. It's 10% saturated fats supply energy whereas the EFAs primarily function as building blocks for cells and hormonal production.

In Europe and North America the list of foods which have been created using hemp seeds is mouth watering .For example hemp flour, hemp milk, hemp butter, hemp nut loaf, pasta, hemp burgers, pancakes, cookies, cakes, ice cream, hummus, textured vegetable protein, hemp paste, bread, toasted seeds, and just good old plain raw dehulled seed to add to your favorite dish. Unlike soybean, hemp seed have not been genetically modified and are produced without the need for pesticides and herbicides, so generally they are as close to organic as it comes and they taste delicious.

WORLD aid. If hemp seed crops were established in all third world countries or at least supplied to these countries without a doubt this would alleviate hunger like no other food stuff. But with that good old “war on drugs” would’nt that get confusing!

See previous issues of NEXUS or Udo Erasmus “Fats that Heal Fats that kill” for up-to-date coverage and links for EFAs.

About the author Susanna Wilkerson , originally from Canada, has been practicing naturopathy for 28 years. She lives in the Atherton tablelands where she has been growing hemp since 2002. Susanna has been actively promoting hemp production through publications, radio and public discourses.

She is the founder of Pure Delight Hemp body care range and has been doing research and development on hemp fiber building Materials.

She does NOT promote the use of THC the drug active component in Cannabis

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