

## "THE LOWDOWN ON EDIBLE OILS"

by Gordon L'Allemand

COLD PRESSED OIL is such a comforting phrase to see on a label in your health food store. It makes you vision oil-rich grains being pressed, the oil flowing out -- wholesome, organic--no heat, no chemicals, no dye or coloring matter, no preservatives--no nothing but just good, organic, healthful, nutritionally valuable oil.

Alas this term cold pressed doesn't really mean legally what you think it does. It is a deceptive trade name, having little to do with the amount of heat developed in processing from grain to bottle. Like so many weasel-worded phrases and sentences used in labeling our foods they make you think one thing, while frequently something else entirely is the actual fact. Oils labeled "Cold Pressed" may be heated as high as 475 degrees, and have other unsatisfactory features about their production.

There are some good things and many bad things about the extraction and processing of oils in health food stores, and in all the oils in regular commercial food markets. You are familiar with such brand names as Hain Oils, Mazola, Best Foods, Jewell Oil, Planters Peanut Oil, Armour & Co., Vitamin Products Co., and Paul Keene of "Walnut Acres Farms", Penns Creek, Penna. The Hain Co. sells largely to health stores, but has entered the non-health food stores commercial market under the brand name "Hollywood Health Foods".

The trend now is toward OILS and away from solid fats like lard, Snowdrift, Fluffo and other hydrogenated solid fats. It is interesting to see the big oil companies stressing the health values of their products. Here is some copy from a Wesson advertisement in Readers Digest:

"Wesson Oil helps cut down cholesterol-- the prime suspect in coronary heart disease. In preparing the foods your family enjoys most, the deliciously simple change to Wesson not only helps reduce cholesterol but keeps it at lower levels. Always use Wesson, the pure vegetable oil (ed.: cottonseed), as a replacement for solid fat whenever recipes permit--and always in your skillet. The saturated character of solid fats has been found to build up cholesterol in the blood. But the poly-unsaturated quality of Wesson Oil--when used instead of solid fats--cuts down cholesterol, etc."

Edible oils generally available are: Soy, Corn, Peanut, Olive, Safflower, Sunflower, and Cottonseed. A tiny percentage of the grains and seeds for these oils is from organic sources. The Big Four: Cottonseed, Soy, Corn, Peanut.

It is a far cry from the crude oils first pressed from the Soy Bean, peanuts, corn, and cottonseed to the "pure, clear, colorless, tasteless, bland, long-keeping" refined oils on market shelves today. We could hardly use a couple of the oils as they come from the grains. Crude cottonseed oil contains a substance called gossypol which may be toxic, must be removed. Commercial edible oil processors, however, go overboard in using chemicals, various processes, petroleum solvent products for extraction, etc. which we feel are mostly unnecessary, and bad for healthful nutrition.

Virgin Soy Oil, unless made from carefully selected beans, will be hardly fit for use without refining. In fact, much of the raw materials from which oils are made are moldy, rancid, stale, bug contaminated, rat infested etc. The refining of the end product takes care of this situation. No no. 1 peanut gets into an oil mill. The high quality nuts are sold as such for making nut butter, candy or roasted nuts. The spoiled crop is sold at a lower price for oil making, because it has always been the custom to refine, deodorize and bleach the oil. Until vitamins were discovered, no thought was given to the possibility that this might not be a good practice, according to Dr. Royal Lee.

But an illuminating item was published a few years ago in Science News Letter. (June 16, 1951). Clinical tests were reported in which the remedy for high blood cholesterol was found to be the PHOSPHOLIPIDS (lecithin group) in UNREFINED oils.

Another Science News Letter item showed the difference between refined oils, and hydrogenated oil - (synthetic fat).

An Eastern hospital with a large group of high cholesterol patients divided them into three groups. One group was fed eggs for breakfast fried in hydrogenated fat. Their blood cholesterol continued to gradually rise during several weeks of the test.

The second group was fed eggs fried in refined peanut oil. Their cholesterol failed to rise, remained at the same level. The third group fed eggs fried in UNREFINED peanut oil, showed a progressive drop in their blood cholesterol.

The amount of oil taken in as a part of a fried egg may not be much but it appears enough to progressively make you well, or drive you into a hospital.

It shows you how it is important to get your vitamins in GOOD FOOD. If somebody tried to put up a capsule containing all the phospholipids found in a natural oil, the FDA probably would make them file an application for a "new drug" and spend 100,000 dollars to prove it was effective, so you no doubt will not see for some time such a product. But you can TODAY get Natural Oils if you insist. They are perishable, like freshly ground flour (which loses 10 percent per day of its vitamin E after Nature's seal on the grain is broken) or fresh milk. If carefully prepared from good materials they will keep for months in the original package. But once they are opened and exposed to moist air, the moisture catalyzes oxidation and the development of rancidity. And rancid oils are TOXIC. Even carcinogenic. (See Oberling's The Riddle of Cancer page 112, Second Ed. Yale Univ. Press). And once rancid, they are as reasonably reclaimable as a bad egg. No effort of man can possibly make a good food out of it, but until the story of Vitamins began to be obvious, a refined oil was considered quite proper as food.

The hydrogenated oil is another further step in the wrong direction. It is SYNTHETIC, meaning man-made instead of being a product of plant or animal life. Made from rancid oils in practically all cases, as freshness is no requirement for the sources used. Made by exposing the oil to hydrogen gas and a catalyst at high temperatures and pressures. This breaks down the oil molecule, reassembles it in new forms, in this case with more hydrogen, which raises the melting point. After refining, bleaching and deodorizing, it is re-flavored and re-colored for its new purpose. FOOD -- well, hardly!

As we here consider edible oils and their extraction and refining, we are reminded of what is happening to all our foods today. The public is continually barged with a torrent of brain-washing drive via radio, TV, newspapers and magazines--conditioning and lulling their minds with often ludicrous misrepresentations about foods and everything else. They have people even preferring white bread because it is "soft" and "pure white" and "long keeping". Women even prefer white rice over the natural brown because they are told it is "white and quick-cooking". The public is being injured and robbed and brain-washed to like it.

The giant food processors and packers add and subtract, extract and shift around, color, dye, bleach, deodorize, denude and "enrich" until foods, etc., suit their commercial purposes, giving scant attention to public health and welfare. This process leads only to defeat, for the real values lie in natural values, the balance of major elements, and often in minute quantities of trace elements. Often these trace elements hold the key to healthful life. Frequently they tend to cause far-reaching trouble when men try to work with them, remove them, substitute synthetics and go merrily on thinking they have won. You cannot break Nature's laws without paying a penalty. The deplorable state of our national health discloses to what depths we have sunk due to our denatured and devitalized foods.

Dr. Paul Dudley White the celebrated heart specialist in an address to the Wisconsin Heart Association June 1, 1957 made the statement "the present epidemic of coronary thrombosis and atherosclerosis has made the U.S. the most unhealthy country in the world".

How Come? Simply because the refined and synthetic food industry got too big to control before we learned how bad their products were.

#### METHODS OF OIL EXTRACTION

1) The oldest method, now little used, is the application of pressure to batches of oil-bearing material in bags or cloths. This is hydraulic pressing. Generally the ground or rolled material is steam cooked at temperatures as high as 270 degrees, and then pressed. An excellent method.

2) The second method is the expeller method. This uses a screw or continuous press with a constantly rotating worm shaft. Cooked material goes into one end and is put under continuous pressure until discharged at the other end with oil squeezed out. Temperatures often over 475 degrees are built up. Most of the FINEST QUALITY OILS TODAY are produced by this method.

If done in small presses, the temperature does not rise to undesirable degrees. Soy Oil made from good beans in a small press is actually PINK in color. In a big press, it becomes brown. The precooking is not necessary as the extra oil yield on the small scale operation will not pay for the extra expense.

3) The third method -- this one is definitely dangerous to health -- is the SOLVENT EXTRACTION method. Oil-bearing materials are ground, steam cooked, then mixed with the SOLVENT (of a petroleum base) which dissolves out of the oils, leaving a dry residue. The solvent is separated from the oils. This method is universally used by

the big commercial oil processors because it gets out more oils, quicker and cheaper. About 98 per cent of the soy oil in the U.S. is solvent extracted.

What about these SOLVENTS! Most commonly used solvents are light petroleum fractions -- four types of NAPHTHA used are the Pentane, Heptane, Hexane, and Octane types; another solvent used is synthetic Trichlorethylene. Some of these are commonly found in gasoline. Most used solvent is Hexane. Oils dissolved by this method are solvent extracted DISSOLVED oils and are not pressed oils.

The big commercial edible oil processors and distributors tell us that if any of the solvents remain in the oils it is very little. But you know just how much you can trust commercial sources. We do not know how much remains, or how harmful these solvents may be. Pertinent here is an observation coming out of a symposium of cancer specialists organized by the International Union Against Cancer meeting in Rome in August 1956. Among many things they observed "Since various petroleum constituents, including certain mineral oils and paraffin, have produced cancer in man and experimental animals, the presence of such chemicals in food appears to be objectionable, particularly when such materials are heated to high temperatures."

In gathering material for this article the writer contacted many sources. Vitamin Products Co., wrote us, "We know of no one making peanut oil commercially who uses No. 1 grade peanuts. They buy moldy, spoiled peanuts that cannot be sold for any other purpose, then refine and deodorize the oil to remove rancidity. We believe it impossible to produce wholesome oil in this manner.

"Cocoanut meat is shipped to the U.S. in the form of rancid, particularly decomposed material unfit for food. The oil is extracted, deodorized, bleached, then hydrogenated to make oleomargarine. It is totally unsuitable for nutritional use. It becomes a synthetic food with no appreciable vitamin or mineral values."

The writer of this article sent out the following questionnaire on extraction and processing background data to the large companies producing edible oils selling in commercial food markets and health food stores. In all but two cases TWO queries were sent to each subject, with stamped, addressed return envelopes. Questionnaires were sent to:

- 1) Hain Oil Co., 334 Azusa St., Los Angeles, Calif. This firm supplies much of the oils sold in health food stores.
- 2) Wesson Oil Co. -- Proctor & Gamble.
- 3) Mazola Corn Oil, American Corn Oil Co., New York City.
- 4) Planters Peanut Oil Co.
- 5) Vitamin Products Co., Milwaukee, Wisconsin.
- 6) Skelly Oil Co., Kansas City, Mo. This company supplies most of the SOLVENT materials used by edible oils processors.
- 7) Paul Keene, "Walnut Acres Farms" - Penns Creek, Penna.

Here is the form and questions asked:

Gentlemen: I am writing a magazine article on the background of edible oils. All major brands are included. Will you answer the following questions in relation to your brand of oil:

- 1) Do you obtain your grains or seeds in the open market?
- 2) What extraction method do you use, and what solvent?
- 3) In processing what per cent of phosphatides, including lecithin are removed?
- 4) How many times is your oil filtered, nature of filter and what size mesh?
- 5) Is your oil bleached? How and with what?
- 6) In refining is your oil treated with lye, caustic soda, sodium, or sodium bicarbonate to remove free fatty acids?
- 7) What preservatives do you use to prevent rancidity?
- 8) What dye or coloring matter is used in your oil?
- 9) Is your oil deodorized? How -- with what materials, and at what temperature?
- 10) How many parts per million of D.D.T. or other chlorinated hydrocarbons show as residue in your oil?
- 11) What per cent of tycoferals are lost in refining in your oil?
- 12) How high is the iodine content in your oil?

Please reply soonest,

Sincerely yours,

Results from above questionnaire: The Hain Oil Co. declined to answer either letter. Wesson Oil Co. very thoughtfully sent a colorful brochure with recipes using Wesson Oil. Planters Peanut Oil Co. replied, "As you will appreciate there are many confidential operations in most every business, and it is not deemed advisable to release such information in a general way." Skelly Oil Co. answered, "We don't press or process any oils, but we do furnish most of the big oil processors with solvent materials for their Soy, Corn, Peanut, and Cottonseed oil processing. We sell to such companies as Swift & Co., Central Soya Co., Decatur, Indiana; Proctor & Gamble Co.; the Ralston-Purina Co., and others.

Mazola Corn Oil Co. replied most courteously, and sent me brochures "usually reserved for the medical profession." One may be curious why such are not sent the general public, but are available for the medicos. Study of the brochures disclosed that Mazola first softens the corn grains by steeping 36-48 hours in water acidified with sulphuric acid, uses Hexane in dissolving out Mazola Corn Oil, also soda ash and alkali, and that they bleach and deodorize. "The majority of the process is carried out under nitrogen and Mazola Corn Oil is packed under nitrogen to 'preserve its blandness'."

Paul Keene of "Walnut Acres Farm" replied, "We sell Corn, Cotton-seed, Peanut, Safflower, crude Soy, and Sunflower oils. All our oils are pressed; none is extracted with solvents. Our oils contain no anti-oxidants, preservatives, coloring matter, no additives, and should be kept refrigerated. We are particularly proud of our Sunflower oil -- from organic seeds and cold pressed."

Vitamin Products Co., replied, "We handle Corn Germ Oil, Peanut, Sesame, and Safflower oils. All are pressed, none extracted with solvents. We have small imported stainless steel machines to press our oils. No preservatives, additives, or coloring matter used. Our Corn Germ oil is a by-product from government contracts for fat free corn germ made from open-pollinated grain. In the case of Peanut and Safflower oils we buy up whole organically grown crops and process. Keep our oils under refrigeration."

Following is a breakdown of general steps in oils refining. Oils are extracted in big plants, on a mass basis, from grains and seeds bought in the open market, and in the great majority of cases by the solvent extraction method. Such oils are shipped in tank cars to refining plants of processors. All kinds of oils are extracted in the refineries, so it is obviously difficult to obtain PRESSED oils extracted separately from DISSOLVED oils. Paul Keene, however, says he is able to do so.

#### REFINING STEPS WITH EDIBLE OILS PRODUCTION

1) Usual first step in treatment of oils is with caustic soda, soda ash or sodium bicarbonate. This removes the free fatty acids, making soap of them. These free fatty acids were released from combination as glycerides in the fresh oil by reason of the decomposition incident to the staleness of the oil. There are no free fatty acids in fresh, edible oils of the sources mentioned until spoilage occurs. The product then has passed out of the food category, and no man-made treatment can restore its original value. It is like a rotten apple, rancid butter, moldy break, or an odoriferous egg. Any attempt to renovate it is fraud. Oils are frequently steamed or mixed with water to remove "impurities". Then they are filtered.

2) Oils are next bleached. This treatment makes oils light and clear in color. At this step they are treated with bleaching earth or Fullers earth or clays, consisting basically of a hydrated aluminum silicate material. Activated carbon is also used. After bleaching oils are again filtered.

3) Oils are now deodorized by process of steam distillation. Any remaining odors and much of the flavor is stripped from oils, and at a temperature of as high as 475 degrees. Oils now cooled, filtered again. Preservatives are frequently added at this juncture to keep oils from oxidizing or going rancid (if kept outside a refrigerator). Common preservatives used are Propyl Gallate and Citric Acid. These are contained in such commercial preservatives as TENOX 2, 6, 7, R & S. Some oils are dyed or colored, with what, we could not find out.

#### CONCLUSIONS

The most healthful and nutritionally valuable edible oils for salad making, mayonnaise, baking, frying, cooking are the pressed oils, from organic or as near organic sources as possible, and not extracted and processed with solvents, a parade of chemicals, anti-oxidants, preservatives, additives, dyes or coloring matter, etc. Organically produced oils without preservatives must be kept refrigerated. Light also causes deterioration, and the containers must be tightly stoppered against air and moisture.

END

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