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Jojoba: What You Might Not Know

by **Robert L. Butler**

Pure golden jojoba is one of the most widely used carriers for the creation of aroma therapeutic blends. Massage and esthetics professionals also use jojoba for many of their applications. And, jojoba is becoming a staple for personal use in bathrooms and kitchens.

After 20 years of educating professionals, manufacturers and the general public, we continue to meet those who, despite their use of it, don't understand what jojoba is. The invitation to write this article presents another wonderful opportunity to provide information.

Pure jojoba (*Simmondsia chinensis*) is a liquid wax ester akin to the esters humans produce in their skin. It's also a fixative. Unlike triglyceride oils, properly stored jojoba has an indefinite shelf life, and it extends the shelf lives of ingredients blended with it. Pure jojoba

is non-allergenic; it does not clog pores; and it does not stain.

We often tell those of our customers who refer to jojoba as "jojoba oil" that they are overlooking the foregoing properties AND they're grouping jojoba, a mono-species, with a class to which it does not rightfully belong. Ignoring or passing over the uniqueness of jojoba is bad marketing. It misinforms the customer, and it overlooks jojoba's special qualities.

All jojoba, no matter where it's grown in the world today, originated from the Sonoran Desert of Arizona, Northern Mexico and arid California.

Until the mid-Nineties, California and Arizona were the world's major growing areas. Those

areas are not ideal because winters can be cold. When ambient temperatures fall below freezing, frost can damage the flowers of both the male and female plants. (Jojoba is wind pollinated.) Results can be disastrous. The last two years we farmed in Arizona (2004 and 2005), frost devastated our crop.

The acreage of actively cultivated jojoba in Arizona has decreased from more than 40,000 during the Eighties to around 3,000 today. And weather conditions continue to plague the remaining growers in that area. 2012 was a bumper crop year for many. The 2013 crop, by all accounts, is practically non-existent.

Countries with moderate, Mediterranean climates have picked up the slack as production in the United States has decreased. Israel, Australia, Peru, India,

Egypt, and Tunisia, are in various stages of developing jojoba acreage. The climates of some of the countries are friendlier to jojoba than others. Argentina, the world's current leading producer, for example, suffered a devastating 70% loss of crop to frost in 2011, the ripple effects of which continue to be felt today. Growers who had and have jojoba seeds have more than doubled their prices, and the future for continued growth of markets for jojoba remains uncertain.

We've heard from some people that they are particular about where the jojoba they purchase originates. On a macro level, that's a meaningless issue. ALL jojoba grown in the world today originated from the Sonoran Desert of North America. If the country preference is driven by considerations of quality, we agree that it's warranted. Producers in certain countries are far better than their competitors in other countries. If the preference is driven by politics, we think it's unwise. This year's political poster child could be next year's agricultural disaster. We recommend that business people stick to their knitting and leave politics to the politicians. Decisions NOT to buy jojoba from this or that producing country for purely political reasons could come back to haunt. Countries that are more "politically correct" don't always have viable crops. Choose your supplier based upon the supplier's knowledge of the jojoba he or she has purchased, the excellence of the supplier's specification, and the supplier's levels of service and reliability.

Over the years, jojoba growers have cultivated plants that have desirable characteristics. We're NOT referring to genetically modified organisms (GMO) here. Jojoba growers have looked for good candidates, which can be used as "mother plants", from which they can obtain cuttings for rooting. Sought-after characteristics of mother plants include early seed drop (to avoid exposure to rainy seasons), seeds with high levels of extractable liquids content, high yields of seed per plant, early seed production in the plant's life cycle, resistance to frost and insects, and higher levels of drought tolerance.

Growers who planted pilot plots from seed have a better opportunity of finding and developing cuttings that meet the specific requirements of their growing area. Owners of seeded plots can identify potential mother plants. Fields planted from rooted cuttings offer no such variety. All of the plants in cutting fields are uniform—and equally

vulnerable to disease. (Remember the Irish potato famine.)

Most jojoba, unless it's been handpicked in the wilds of the Sonoran Desert, is machine harvested. While designs differ, the basic principle is to create a machine that vacuums up seed that has matured and fallen to the ground.

After completion of the machine harvest, hand harvesting is a must to clean up the fields in preparation for the next year. Regrettably, too many growers do not observe the elementary rule of "hand harvest after the machine harvest".

Wild crafted jojoba is, in our opinion, not desirable. The seeds must be picked directly from the plants prior to maturity. If not, they'll fall from the plant when they do mature, making it difficult to find them in rocky desert terrain. Pressing immature seeds does not produce quality jojoba.

The importance of seed cleaning and preparation is often overlooked. Excessive foreign matter (more than 1% by weight), seed with too much moisture (more than 4% by weight) and moldy seed are not desirable. Moldy seed is a real potential problem. Its presence is most often due to growers' failures to clean their fields after each harvest. Seed left in the field will germinate or rot. Growers will pick up rotten seed during the following year's harvest. One can smell the mold in jojoba that has been pressed from moldy or otherwise compromised seed.

Processing is more an art than it is a science. An expeller press is the machine into which jojoba seed is introduced. Out of one end of the expeller comes the jojoba; out of the other end comes jojoba meal. "Expelling" is a physical process and should not entail chemical pre-treatments of any nature. The amber-golden liquid thus obtained is called unrefined jojoba. "Unrefined" means nothing has been done to compromise the integrity of the jojoba.

While we're on the topic of processing, let's deal with a major misconception. People often ask if our jojoba is "cold pressed". We respond that there's no such thing. Jojoba seeds are quite hard. Processing them requires significant pressure. Pressure creates friction and (you know where this is leading) friction creates heat. A more apt description of the process is to refer to jojoba as 'expeller

pressed' - If, indeed, that's the case. (Jojoba can also be solvent extracted. We'll discuss that later.)

The meal or press cake may be immediately run through a second expeller press, operated in tandem with the first expeller press, although a second pressing does not always take place. Pressing really hard the first time is often all some processors can do because they don't operate tandem presses.

The second press jojoba, obtained from the first press meal, is typically refined. Refining is necessary because the quality of the second press jojoba does not compare at all well to the quality of the jojoba extracted directly from the seed. Second press jojoba is dark in color and has a strong odor. It does not penetrate as readily into the skin. It is not a product, which is easily sold. Consequently, second press jojoba is refined, in order to make it suitable for manufacturers and others. Some processors will blend second press jojoba with the first press jojoba to maximize their profits.

Typically, processors want to maximize yields; they press the seed as hard as they possibly can. Their only goal is to meet the standard ranges the jojoba industry has established to measure purity and quality. We're referring here to peroxide value, refractive index, acid value, and other measurable properties. Producing jojoba that falls within the prescribed ranges of the properties is usually sufficient for industrial purposes. Large international companies, which purchase the lion's share of the world's jojoba, will process it further to meet the unique requirements of the products they are offering to the public.

Aromatherapists operate on a different level. Sure, they want the various measurable properties to fall within their typical values. However more subjective—and critical--factors also come into play. It's those intangibles that coalesce to create an exceptional product. High quality jojoba that has been lightly pressed from jojoba seeds that have been carefully cleaned and dried has a faint, almost imperceptible odor. It's the holy grail of the aroma therapist's base or carrier. Jojoba seeds are not usually pressed to obtain jojoba of this quality. Processors are generally loathe to custom process to more exacting specifications. Finding high quality, first-press, unrefined jojoba can be daunting.

If your jojoba has no odor at all, take this as an

Essential Oil Profile

indicator that the jojoba has been de-odorized. The de-odorizing powder is toxic. While those companies, which use it, claim they filter all of the powder out of the jojoba, I'd be skeptical. Sadly, companies which deal in de-odorized jojoba often will not divulge to their customers that the jojoba has been de-odorized or explain the process. Consequently, there are lots of people out there who think jojoba is not supposed to have an odor.

Solvent-extracted jojoba is obtained from second-press or even single-press jojoba meal. The solvent is hexane, a carcinogen. The meal is washed in the solvent and the residual jojoba/hexane mixture is then heated to high temperatures to vaporize the hexane. Solvent-extracted jojoba is most often used to produce jojoba derivatives. It's also combined with refined jojoba and even golden jojoba to "make it go further".

Refined jojoba is golden jojoba (expeller pressed from single-press meal and/or combined with solvent extracted jojoba) that's

been de-colored, de-odorized, de-gummed, neutralized and stabilized with a synthetic tocopherol. (During refining the natural alpha, delta and gamma tocopherols present in jojoba seed may be compromised.)

The refining process varies; it is dependent upon the requirements of the processor's customers. The refiner's focus is to obtain a colorless and odorless product, which combines well with cosmetic ingredients, or, which can be used to produce jojoba derivatives.

We strongly advise aroma therapists not to use refined jojoba. It detracts from the superior quality of their essential oils. It's like mixing an organic ingredient with one that isn't and then claiming the product is "made with organic". That's a meaningless claim.

Second press jojoba and refined jojoba may be blended and then de-odorized. The refined jojoba lightens the second press jojoba; de-odorizing makes the blend more palatable to the olfactory experience. If you are purchasing

golden jojoba, ask whether the jojoba you are purchasing is a blend, or is pure and unrefined. Your supplier should know the answer.

We make no pretenses as to our own bias. In our view, unrefined, first-press golden jojoba is the only jojoba, which should be used on human skin. It is the purest form of the product, guaranteed, when pressed and filtered properly, to deliver the natural goodness of the seed.

About the author: Robert L. Butler owned a jojoba farm in Hyder, Arizona for 15 years. He is president of The Jojoba Company, d/b/a The Original Jojoba Company, which has been providing first-press unrefined golden pesticide-free and USDA certified 100% organic jojoba to aroma therapists and to massage and esthetics professionals, manufacturers of personal care products, spas, salons, resorts, and numerous other businesses since 1994.

www.jojobacompany.com