

A La Mode

photography by Dana Jones



# Advances in Aromatherapy

By J. Elaine Spear

Ever since French chemist René-Maurice Gattefossé published his book, *Aromatherapie*, in 1937, scientists, spiritualists and salesmen have been intrigued by the potential of volatile plant oils. Proponents have credited these oils with numerous properties, saying they can enliven the spirit, calm the mind and treat a long list of maladies ranging from rheumatism and poor liver function to premenstrual syndrome. These claims have prompted scientists, herbalists and clinical aromatherapists to closely scrutinize these purported benefits. Their continuing efforts in this field are dispelling myths and misunderstandings, while validating the impact volatile oils can have on the mind, body and spirit.

Harvard Medical researchers recently released an important study on the trends in complementary and alternative medicine (CAM) over the past 50 years. Authored by Ronald Kessler, their

### Analyzing Oils

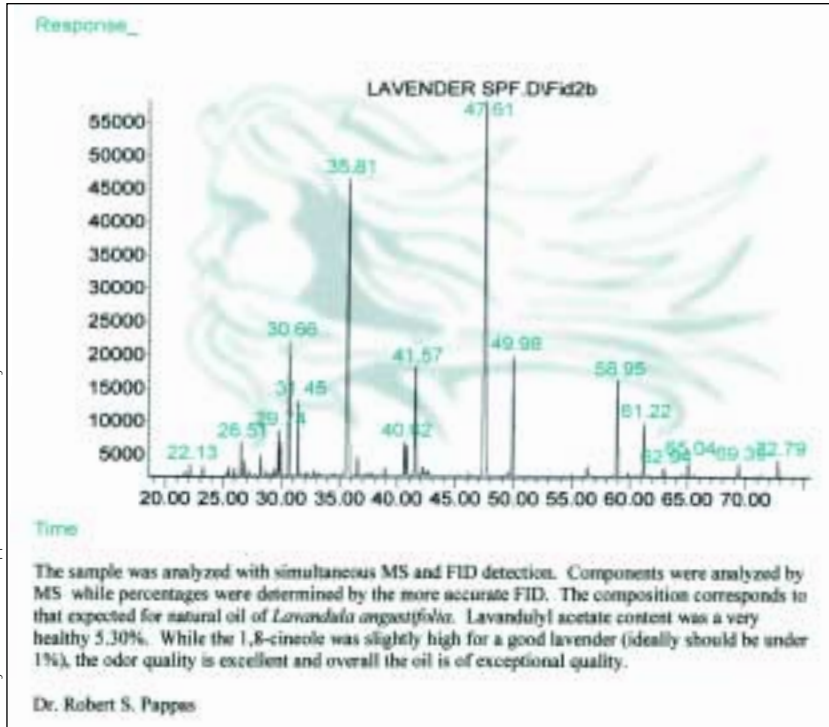
Unlike their synthetic counterparts, essential oils are precious and complex botanical extractions containing between 75 and 300 known chemical constituents. Some very broad classifications of these components include terpenes, alcohols, ketones, aldehydes and phenols.

“Within each of these basic classifications are many different chemicals that vary in effect from therapeutic to quite caustic,” says Kahn. “Since essential oils—and all their chemical components—readily evaporate into the air, they have the ability to positively or negatively impact people’s well-being.”

Until gas chromatography and mass spectrometry (GC/MS) instruments were improved some 20 years ago, determining the effects of different essential oils was much more difficult, and relied mostly on chemical analytical methods and anecdotal evidence. Through the increased use of GC/MS—accelerated by the advent of “botaniceuticals” in the early 1990s—scientists have now been able to accurately identify many chemical constituents of plant oils.

“Gas chromatography does this by separating the oil into its individual components,” explains Robert S. Pappas, Ph.D., chemist and president of Essential Oil University in New Albany, Indiana. “As each molecule goes into the mass spectrometer, it’s bombarded with an electron beam, fragmenting the molecule into various ‘pieces’ called ions. Each different molecule has a unique fragmentation pattern, providing an accurate ‘fingerprint’ or basis for identification.” (To view examples of analyses/reports based on GC/MS, see the chart on this page or you can access Pappas’ Web site at [www.essentialoils.org](http://www.essentialoils.org).)

Unfortunately, this type of analysis also shows that there’s still a lot of



Courtesy Dr. Robert S. Pappas/Essential Oil University

Each peak in this analysis of lavender oil from Essential Oil University corresponds to a different molecule.

## Scientists can now identify many chemical constituents of plant oils.

findings were published in the *Annals of Internal Medicine*, August 2001. This study identifies 20 different CAMs—including aromatherapy—that are now being used by a wide swath of society.

“While medical treatments are outside our scope, this study shows that consumers have a heightened awareness of how aromatherapy oils can enhance their lifestyles and well-being. This awareness presents a great opportunity for day spas,” says Linda-Anne Kahn, clinical aromatherapist and owner of Beauty Kliniek Aromatherapy Day Spa in San Diego, a company that also offers aromatherapy courses for licensed spa practitioners. “With science becoming more involved in this field, you also have better opportunities to access valid information about essential oils and what they can really do for your clients.”

**“I took my oils to a testing facility and discovered that my linden oil was 90% synthetic.”**

**The essential oils extracted from botanicals are much more complex than their synthetic counterparts.**



Courtesy Ojai Valley Inn & Spa

chicanery going on in the essential oil business. “Spa professionals are usually advised to base their decisions on explicit trust in their essential oil suppliers,” says Martha Buldain, aromatherapist and founder of Buldain Aromatics in Bellevue, Washington. “I did this when I first formulated my own products. After months of pouring my heart and money into my line, I became suspicious when my supplier agreed time and again to send me GC/MS reports on my oils, but they never arrived. I finally took my oils to an independent testing facility and discovered that my linden oil—one of two main ingredients in my line—was 90% synthetic. It was the saddest thing because I had to scrap the line and start over.” (Buldain has since recovered from this debacle and is now working in partnership with Jimm Harrison, a long time educator in the field of essential oils and aromatherapy. Together they’ve formulated a genuine botanicaceutical product line with no synthetic additives.)

While the cost of GC/MS analysis has traditionally been out of the financial reach of most spas, one of the most important advances in this science is better affordability for small companies with relatively modest budgets. According to Larry Jones, owner of Spectrix Lab in Santa Cruz, California, an independent company that’s associated with Elizabeth Van Buren essential oils, his facility offers GC/MS analysis for between \$125 and \$175 per sample, depending on the thoroughness of the report. This empowering advancement allows spas to find out whether they’ve put their

trust and reputation into the hands of the right suppliers. (For more information on testing your oils, contact [Larry@spectrixlab.com](mailto:Larry@spectrixlab.com).)

“I feel strongly that everyone should be testing their oils because deception in this business is such a common occurrence,” says Jones. “I once did a study on different essential oils being sold in health food stores. I first performed GC/MS analysis on several different brands of neroli essential oil and found that 5 out of 12 were adulterated. I did the same thing with rosemary and lavender essential oils, and my testing revealed that more than half of those were in the same shape.

“Even today, I find this sort of thing all the time. Just recently, one of our regular suppliers sent us some valerian root that was adulterated with patchouli alcohol. We also recently tested a lavender oil that was adulterated with synthetics, a basil essential oil with linalool added to make it fetch a higher price, and myrrh essential oil that was 65% solvent. We also occasionally find plastics that have leached into essential oils due to improper packaging. All this adulteration not only lessens the positive effects of the oils, but can actually put users at risk for toxic reactions. This is why I say everyone should be analyzing the oils they use,” Jones concludes.

Testing for pesticides is another matter. Essential oil suppliers rely on a Certificate of Analysis (C of A) that ideally details the chemical composition of the oil as determined by gas chromatography. If the oil is supposed to be organic, it must also undergo additional costly testing and certification. This significantly drives up the price of organic oils. “I don’t think an organic certification is necessary for most essential oils because

**One of the best advances in aromatherapy is the more frequent use of CO<sub>2</sub> extraction.**



Courtesy Spectrix Lab

**Larry Jones, owner of Spectrix Lab in Santa Cruz, California, says the Gas Chromatograph-Mass Spectrometer (GC/MS) is science's most powerful research tool for analyzing essential oils.**

only trace amounts of these chemicals can get through the steam distillation process. We get far more pesticides in our food and drink every day than we come into contact with during an aromatherapy spa treatment," says Martin Watt, a world-renowned certified medical herbalist in Blackmore, Great Britain. (Watt has produced an educational CD series that's spa-friendly and available by visiting [www.aromamedical.com](http://www.aromamedical.com).)

Pappas, however, points out that the opposite is often true of citrus essential oils. "Because citrus oils are extracted from the skin of the fruit through a cold press method, any pesticides that are present will be represented in these oils," says Pappas. "The same is true of hydrosols or floral waters because they're often the byproduct—the water that remains after distilling an essential oil—of steam distillation. This water is where pesticides end up as a result of the extraction process. If your company has a pure and natural approach to spa services, you should consider carrying certified organic citrus oils and hydrosols."

One of the best advances in aro-

matherapy oils in terms of quality is the more frequent use of CO<sub>2</sub> extraction, a method that's considered "the best of the best" by experts like Pappas. With this method, essential oils are extracted by pressurizing carbon dioxide (CO<sub>2</sub>) until it becomes a liquid. It then acts as a solvent on the natural plant matter and the essential oil content dissolves into the liquid CO<sub>2</sub>. When the extraction process is complete, the CO<sub>2</sub> is brought back to its gaseous state and what's left is the essential oil. "CO<sub>2</sub> oils (commonly called CO<sub>2</sub>s) are thicker than steam-distilled essential oils and are often a truer representation of the natural essence of the herb," says Pappas. "Too, there's never a trace of solvent residue left behind since the CO<sub>2</sub> is returned to a gaseous state."

It's important to note, though, that most trade organizations don't recognize oils extracted with CO<sub>2</sub> as true essential oils since they must be steamed or hydro-distilled (or in the case of many citrus oils, cold-pressed) to meet current trade standards. Many aromatherapy experts, however, are



Courtesy Canyon Ranch

Effective aromatherapy can have a profound impact on the human psyche.

**“The gods and goddesses of the aromatherapy business are keeping this practice in the dark ages.”**

emphatic about the worth of essential oils extracted with CO<sub>2</sub>. “In terms of composition and aroma,” says Watt, “CO<sub>2</sub>-extracted oils are streets ahead of hot-distilled oils.”

### Studying Oils

Because buying aromatherapy oils remains a risky venture, Watt encourages spa therapists to do their homework before making broad claims about any essential oil. “The gods and goddesses of the aromatherapy business are definitely keeping this practice in the dark ages by disseminating false information to spa therapists,” says Watt. “This misinformation—ranging from outrageous medical claims to claims that the oils are gathered at dawn with a golden sickle—are repeated in product brochures, by salesmen, so-called expert educators and the many aromatherapy ‘novels’ that are masquerading as textbooks in the international marketplace.”

One claim that Watt remains totally unconvinced about is the benefits of aromatherapy through skin absorption dur-

ing massage. “I’ve found that aromatherapy can have psychotherapeutic effects on the olfactory system and the brain,” says Watt. “It’s excellent for giving relief from many musculoskeletal ailments, especially when compresses are used since this discourages essential oils from evaporating into the air. I also find that essential oils can yield spectacular results in treatments for various kinds of skin trauma. But I do take exception to the widely accepted notion that therapeutic amounts of essential oils are absorbed into the skin during massage. I say this because essential oils are so volatile that as soon as they’re applied to the skin, they evaporate into the open air.”

Even though Watt has been following scientific research regarding the absorption of essential oils for many years, he claims he hasn’t found a single trial with adequate methodology. “I have never seen a study in which precautions were taken to prevent the inhalation of the volatile molecules,” says Watt. “Researchers who don’t understand the basic nature of essential oils often overlook this factor. Research by A. Falk-Filipsson in the *Journal of Toxicology and Environmental Health* (Vol. 38, 1993) has shown that when the chemical constituent d-limonene (a chemical that is found in particularly high levels in citrus) was administered to men via short-term inhalation, up to 70% of this substance was absorbed by the lungs. I believe this same thing happens during massage.”

To confirm his theory, Watt has recently set up the first phase of clinical trials on skin absorption of essential oils at Anglia University in Great Britain. He hopes to have the results of blood tests taken from his subjects in the near future.

Medical studies are also advancing the use of essential oils for their psychotherapeutic effects. Taking aromatherapy out



## Subjects in the lavender group showed an increase in alpha and beta band activity.

**Beauty Kliniek in San Diego uses the AromaLand blending bar to customize a variety of skin- and body-care products for its clients.**

of the realm of mystical belief and into the scientific arena, a study conducted by the Touch Research Institute at the University of Miami Medical School (published in the *International Journal of Neuroscience*, Vol. 96) confirms that rosemary and lavender positively affect psychological and physiological functioning when administered through aromatherapy.

Researchers at the Miami Medical School assessed the effect of these two common essential oils on alertness, mood and electrical brain activity. After inhaling one of these oils for only three minutes, subjects belonging to the lavender group showed an increase in alpha and beta band activity, suggesting relaxation; meanwhile, the rosemary group showed a decrease in alpha and beta band activity, suggesting alertness. "These are the types of studies we need to validate our claims about essential oils," says Kahn. "This not only advances the art of aromatherapy, but it also puts spa treatments in a more sincere light."

To keep essential oil suppliers on the straight and narrow, quality-conscious companies like AromaLand and Aroma Naturals are working with the National Association for Holistic Aromatherapy



Courtesy Beauty Kliniek



Courtesy AromaWorks

**The trend toward customizing aromatherapy blends to create personal prescriptions is apparent in the recent introduction of aromatherapy computer software.**

## Hydrosols are also enchanting therapists and clients.

(NAHA), to develop an official Essential Oil Certification Seal for products that are scented exclusively with essential oils. “We hope to have this seal in place by late summer 2002,” says Rosie Warda, vice-president of sales & marketing for AromaLand in Santa Fe, New Mexico, a company offering a wide

range of essential oils and the aromatherapy Blending Bar.

“When it comes to aromatherapy, government regulations make no distinction between synthetic fragrances and natural essential oils. This is why even inexpensive air fresheners sold in grocery stores can claim to have aromatherapy benefits. While we can’t change this, the Essential Oil Certification Seal will let spa professionals and consumers know when they’re buying products that are scented with pure essential oils,” Warda explains.

### Using Oils

As scientific advances continue to validate and promote the art of aromatherapy, spas are also finding new ways to use these fragrant oils. The Beauty Kliniek Aromatherapy Day Spa, for instance, uses the Blending Bar to customize lotions, bath salts, skincare items and massage oils for clients in a relaxed, one-on-one setting. “It’s definitely a department that requires staff members who are knowledgeable about custom-blending oils,” says Kahn. “But if you emphasize aromatherapy in your spa, it’s a wonderful way to augment what you already offer your clients.”

To aid in custom-blending essential oils for spa treatments and retail, AromaWorks ([www.aromaworks.com](http://www.aromaworks.com)) in New York City, offers a computerized

blending program. Cheryl Sott, CEO, claims the AromaPro program took four years to develop and is the equivalent of a knowledgeable aromatherapist with 20 or more years of experience. While this claim has not been substantiated by outside sources, you can test AromaPro yourself by signing up for their free 30-day trial program ([www.aromaworks.com](http://www.aromaworks.com)).

After years of being considered as little more than wastewater, hydrosols are also enchanting therapists and clients. These floral waters are being used for environmental fragrancing, facial toners, as part of skincare formulations and as bath additives. But as with their treatment of aromatherapy oils, there are some beauty scoundrels who are simply adding a few drops of an essential oil to distilled water and calling it a hydrosol! The result is a scent that quickly dissipates, leaving behind an expensive vial of water. Genuine organic hydrosols are available through several companies including Tara Spa Therapy ([www.Taraspa.com](http://www.Taraspa.com)) in Carmel, California, and Acqua Vita ([www.acqua-vita.com](http://www.acqua-vita.com)) in Toronto, Ontario, Canada.

For the pure-minded spa owner who prefers the gentle glow of an aromatherapy candle, Aroma Naturals will be releasing a new food-grade veggie candle line toward the end of summer 2002. Aroma Naturals has reportedly spent two years developing a blend of vegetable waxes—soy, palm, coconut and carnuba plus several others—with melting points that work in sync, thus creating the same drizzle effect that you get from high-quality paraffin candles. ♦

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