KAVA

HISTORICALLY SAFE
"AS A WATER EXTRACT"

Kava juice has been used for 3000 years in the South Pacific as a tranquilizing beverage. The native people have recognized the difference between fresh versus dry root and between Kava varieties with distinct effects. Each of the major kavalactone components has distinct properties, and the specific proportion of these lactones in each variety largely determines the effects derived from the extract. The growing popularity and commercialization of kava root and its extracts as an anti-anxiety agent and muscle relaxant has coincided with a lack of discrimination between the varieties and an emphasis on total kavalactone content. In addition, rather than water, chemical solvents such as acetone have been used commercially to increase extraction of kavalactones. Some manufacturers highly concentrate the lactone content in their extracts. As a consequence, important compounds are left out and the effects are different from those produced by the traditional juice beverage. An unfortunate example of the "different effects" would be those resulting in the liver toxicity that has been reported to occur with use of commercially concentrated extracts made with chemical solvents.

What is Kava?

In Vanuatu and other South Pacific Islands, Kava Kava (Piper methysticum) has been used for over 3000 years as a relaxing beverage. The word Kava means "pungent" and originated in Vanuatu. Applied to Piper methysticum, this word refers specifically to the fresh juice of the Kava root. The recent reports from Germany regarding possible liver damage has not been an occurrence in the ancestral home of Kava, where it is consumed daily as a *fresh* juice pressed from the whole root.

Historically, when the native people of Vanuatu first explored Kava's benefits, they found that some types of Kava were better than others. Therefore, when a good effect was noticed in a specific plant, a portion of its root was replanted. If a negative effect occurred, it was left for compost. For over three thousand years, numerous Kava varieties have survived. Some are used daily as a relaxing beverage, while others are used for special situations and ceremonies. Different types of Kava are chosen depending on the desired effect because certain varieties are mild and others are extremely potent. Therefore, Kava has many faces. While it is botanically identified as Piper methysticum, it is further differentiated by its bioactive effect upon a person. For instance *borogu* and *boroguru* Kava are similar in action and very much favored, while *tudei* Kava is generally regarded as too strong for everyday use.

Kavalactones are a group of compounds found in the Kava plant that are identified for its calming effect. Not only do the kavalactones vary in different Kava varieties, but additional compounds vary as well. The natives of Vanuatu are very discriminating in their selection of a Kava variety for consumption and prefer to consume only one variety at a particular setting.

So when it is generalized that "Kava" is creating an effect or an issue of concern, we must first sort through the variety of the plant initially used and the form of preparations consumed (standardized, dried herb or fresh whole root). Since patented processes (solvent extracted concentrated extracts) of present day manufacturing do not specify what starting material they used to begin the extraction, it could be assumed that any numbers of varieties are utilized for inclusion. This lack of attention to detail and historical pharmacy could present problems.

In present day Vanuatu, there are establishments, called NAKAMALS, which serve thousands of fresh Kava juice beverages daily. NAKAMALS typically announce which variety is being served and the connoisseurs of certain effects gravitate toward the one most suitable for that individual. There would be no mistake in selecting the appropriate Kava variety. Should a NAKAMAL be so unfortunate as to run out of fresh Kava root, and therefore attempt to substitute dry Kava, the patrons would not return to this gathering place for quite some time.

With that important point being stated, we can better address deeper issues. The products in Europe have been in existence for approximately 40 years. They are highly concentrated extracts of dried parts of the plant, such as the root bark, that provide a standardized level of kavalactones. The extraction process utilizes acetone or alcohol and produces a sticky paste, which has little resemblance to the natural form of Kava in use in the South Pacific. It is possible that the recently developed chemical processing introduces compounds into the standardized product that can affect the liver. Another possibility is that the chemical solvents used do not extract the same compounds as the natural water extracts in traditional use. The extraction process may exclude important modifying constituents soluble only in water.

The current standardization products being examined predominantly focus on concentrating the kavalactones and neglect most other useful compounds. Since standardization focuses on kavalactones, some manufacturers may implement shortcuts to deliver this standard at the expense of the other compounds found in traditional preparations. If just the dried root bark is used in extraction, it yields an abnormally high concentration of kavalactones but is disproportionate in the ratios of compounds found in the whole fresh root of native preference. This shortcut is economical because it lowers the volume of material needed for solvent extraction and reduces shipping costs.

This decision however, compromises the years of skillful preparation and consumption by native populations of the South Pacific. Unlike solvent extraction and shortcuts in traditional water-only methods, only about 50% of the total kavalactones are released into the drink, along with an abundance of other apparently favorable constituents. The remainder is discarded by the natives, not necessarily economical, but potentially wise.

There is only one report relating to liver problems while using a traditional water extract of dry Kava root. A study published in 1988 looked at Aboriginal people of Australia who had been abusing alcohol heavily prior to the introduction of Kava into their diet. Unfortunately the study is consistently misquoted and misinterpreted by other publications. This is likely due to the publications' inability to understand the complexities of this issue. When you carefully evaluate the dosage consumed by these individuals, you can see the wide margin of safety compared to a standardized extract.

These Aboriginal individuals consumed approximately 375 grams of dried whole root of Kava as a beverage in water per week. Generally, available Kava averages about 9% kavalactones and as a water extract 5% would be made available in the prepared beverage. Therefore, the assumption can be made that 2700 milligrams (over 12 times the recommended dose) of total kavalactones was consumed daily for 6 years and these people had no liver symptoms but did have a liver enzyme elevation. Compare this to one death and multiple liver transplants with patients who used standardized extracts. These patients had used those standardized products for less than a year and only marginally exceed the recommended dose of 210 mg/day. Another smaller group of Aboriginals consumed about 100 grams per week (which is 3 times the suggested dose of the standardized extract) and had no symptoms. These individuals were former abusers of alcohol and in poor health when the study began. This study supports the use of Kava as a water extract as compared to the liver toxicity associated with standardized extract form.

The ironic part about all the commercial concentration, manipulation and excessive chemical solvent use, at the expense of other associated compounds, is that it is entirely unnecessary. When careful attention is paid to harvest at full maturity the whole, fresh, active parts of the plant are used. Their activity is maintained through to the final preparation, yielding a complete and complex assortment of therapeutic compounds never available in a solid dose form until now.

The pharmaceutical standardized kavalactone extract (containing 70mg of total kavalactones in a 120mg capsule) when subjected to digestion and metabolism, will elicit different responses than a capsule with buffering components provided naturally within the juice.

As an alternative to the standardized products, a freeze dried juice of the water extract of fresh Kava root is available. It contrasts markedly by providing the same total of kavalactones but also provides significant quantities of Kava's other water soluble compounds, which may enhance its activity as well as provide beneficial protection. The ratios in the freeze dried juice are 18% kavalactones and 82% matrix, while standardized are 55 - 90% kavalactones and less than 10 - 45% matrix.

KAVA EXTRACTS AND LIVER TOXICITY

Francis Brinker, N.D.

SUMMARY OF ADVERSE EFFECTS

Consumption of 3-4 capsules daily for two months of **kava standardized acetone extract WS1490 (70 mg lactones per capsule)**, led to fulminant toxic hepatitis that required a liver transplant in a person who had not previously taken drugs or consumed alcohol. Three capsules daily is the maximum recommended dose for this product.[1] Another individual used the maximum recommended dose of WS1490 for three weeks with no incident. Two months later another three-week course of WS1490 use was followed by consumption of 60 grams of alcohol, resulting in acute toxic hepatitis. Use of the concentrated extract was stopped, and liver enzyme levels returned to normal within 8 weeks. T-lymphocyte reactivity to the extract suggested an immune-mediated reaction. In addition, like 9% of the local Swiss population, the patient showed poor metabolism with cytochrome P4502D6.[2]

The German medical literature also reports a **standardized ethanolic extract of kava with concentrated lactones**, was the probable cause of hepatitis in another woman who required a liver transplant.[3] Repeated use of a product with concentrated kava lactones induced hepatitis in a woman who had previously experienced acute hepatitis with elevated GPT associated with using the extract, but she recovered rapidly when the kava extract was withdrawn.[4]

With **abusive kava tea consumption equivalent to an average of 310-440 grams of dried root weekly**, gamma-glutamyl transferase enzyme levels indicative of liver damage were greatly elevated in an Australian aborigine population. However, this group had recently been introduced to the beverage and had previously abused alcohol.[5]

A total of 24 cases of liver toxicity associated with kava extract use have been reported in Germany and 5 in Switzerland. One person has died and three have had liver transplants. In 18 of these cases drugs with known or potential liver toxicity were also used. **No association with liver damage has been reported in South Pacific islands where consumption of kava as a beverage is an important aspect of the traditional culture**. Use of kava products associated with adverse effects on the liver should be avoided in individuals with jaundice, those with past or present liver problems, those taking drug products known to be liver toxins, and those who consume alcohol regularly.[6]

References

1. Escher M, Desmeules, Mentha G. Hepatitis associated with kava, a herbal remedy for anxiety. *Br. Med. J.,* 322:139, 2001
2. Russmann S, Lauterburg BH, Helbling A. Kava Hepatotoxicity. *Ann. Int. Med.,* 135(1):68-69, 2001
3. Kraft M, Spahn TW, Menzel J et al. Fulminant liver failure after administration of the herbal antidepressant Kava-Kava. *Dtsch. Med. Wschr.,* 126:970-972, 2001 [in German]
4. Strahl S, Ehret V, Dahm HH et al. Necrotizing hepatitis after taking herbal medication (extracts of kava or of common or lesser celandine). *Dtsch. Med. Wschr.,* 123:1410-1414, 1998 [in German]
5. Mathews JD, Riley MD, Fejo L et al. Effects of the heavy usage of kava on physical health: summary of a pilot survey in an Aboriginal community. *Med. J. Austral.,* 148:548-555, 1988
6. Anonymous. American Botanical Council Announces New Safety Information on Kava. ABC News Release, Austin, TX, Dec. 20, 2001

ADDITIONAL SUPPORT

For more information about Kava and other herbs please refer to:

Dr. Francis Brinker, N.D., a highly regarded expert in botanical and drug interactions, has expanded the information base from his third edition text, "Herb Contraindications & Drug Interactions" to include an active web site accessed by a link at: http://www.eclecticherb.com/emp. In response to the rapidly expanding and daily changes in this area of critical interest, this new web site offers updates on specific safety issues and adds educational clarification of topical concerns. This site will reinforce the already massive base of information just released in the latest edition.

"As more patients and practitioners use herbal medicines, more questions are asked about their risks and possible interactions with prescribed and over-the-counter drugs. In this new, much expanded edition of *Herb Contraindications and Drug Interactions*, Dr. Francis Brinker has compiled the best available information on these important subjects. This is an important book that should be kept within reach of anyone involved in the rapidly growing field of botanical medicine".

-**Andrew Weil, MD**

Director, Program in Integrative Medicine, University of Arizona College of Medicine

Author, *Natural Health, Natural Medicine; Spontaneous Healing; Eating Well for Optimum Health*

"A well-respected authority in the field of natural medicine, Dr. Brinker once again demonstrates his ability to integrate the worlds of conventional and herbal medicine. This book is an indispensable resource for those who prescribe or dispense medications and are concerned about potential herb-drug interactions and contraindications. Up-to-date and thorough, this latest version of *Herb Contraindication and Drug Interactions* should be required reading for any health care professional!"

-**Tieraona Low Dog, MD**

Asst. Clinical Professor, Dept. of Family & Community Medicine, University of New Mexico School of Medicine Chairperson: Dietary Supplements/Botanicals Expert Panel, United States Pharmacopeia, Member: White House Commission on Complementary & Alternative Medicine

Dr. Chris Meletis, N.D., Dean of Clinical Education at the National College of Naturopathic Medicine in Portland, Oregon and author of "Interaction Between Drugs & Natural Medicines" published by Eclectic Medical Publications, states, "The St. John's Wort roller coaster of active constitutents should serve as writing on the wall when it comes to seeking to isolate a single constituent at the exclusion of other plant chemical substances". In the case of St. John's Wort, it was once believed that hypericin was the gold standard. Then research surfaced about hyperforin. Now flavones compounds are under consideration. "Is it not better to use the whole plant just as it has been used over the centuries and as Mother Nature intended? Much of the medical literature, that reports the side effects and drug-botanical medicine interaction, show that a vast majority of adverse effects arise for two reasons:

1. Use of concentrated standardized products.
2. Excess use of a product beyond traditional use patterns."

Eclectic Medical Publications
Sandy, Oregon
800-332-4372