Drug Enforcement Administration
Office of Diversion Control
Drug & Chemical Evaluation Section

Kava

(Other Names: Ava, Intoxicating Pepper, Kawa Kawa, Kew, Sakau, Tonga, Yangona)

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Introduction:

Kava, also known as *Piper methysticum* (intoxicating pepper), is a perennial shrub native to the South Pacific Islands, including Hawaii. It is harvested for its rootstock, which contains the pharmacologically active compounds kavalactones.

The term kava also refers to the non-fermented, psychoactive beverage prepared from the rootstock. For many centuries, Pacific Island societies have consumed kava beverages for social, ceremonial, and medical purposes. Traditionally, kava beverages are prepared by chewing or pounding the rootstock to produce a cloudy, milky pulp that is then soaked in water before the liquid is filtered to drink.

There is an increasing use of kava for recreational purposes. The reinforcing effects of kava include mild euphoria, muscle relaxation, sedation, and analgesia.

Licit Uses:

In the U.S., kava is sold as dietary supplements promoted as natural alternatives to anti-anxiety drugs and sleeping pills. An analysis of six kava clinical trials found that kava (60-200 mg of kavalactones/day) produced a significant reduction in anxiety compared to placebo. However, the FDA has not made a determination about the ability of dietary supplements containing kava to provide such benefits.

Kava dietary supplements are commonly formulated as tablets and capsules (30-90 percent kavalactones; 50-250 mg per capsule). Kava is also available as whole root, powdered root, extracts (powder, paste, and liquid), tea bags, and instant powdered drink mix. Kava is frequently found in products containing a variety of herbs or vitamins, or both.

A number of cases of liver damage (hepatitis and cirrhosis), and liver failure have been associated with commercial extract preparations of kava. In 2002, the FDA issued an advisory alerting consumers and healthcare providers to the potential risk of liver-related injuries associated with the use of kava dietary supplements.

Chemistry and Pharmacology:

The pharmacologically active kavalactones are found in the lipid soluble resin of the kava rootstock. Of the 18 isolated and identified, yangonin, methysticin, dihydromethysticin, dihydrokawain, kawain, and desmethoxyyangoin are the six major kavalactones. Different varieties of kava plants possess varying concentrations of kavalactones.

The pharmacokinetics of the kavalactones has not been extensively studied. Kavalactones are thought to be relatively quickly absorbed in the gut. There may be differences in the bioavailability between each kavalactone.

The limbic structures, amygdala complex, and reticular formation of the brain appear to be the preferential sites of action of kavalactones. However, the exact molecular mechanisms of action are not clear.

Kava has the potential for causing drug interactions through the inhibition of CYP450 enzymes that are responsible for the metabolism of many pharmaceutical agents and other herbal remedies. Chronic use of kava in large quantities may cause a dry scaly skin or yellow skin discoloration known as kava dermopathy. It may also cause liver toxicity, and extrapyramidal effects (e.g., tremor and abnormal body movement).

Individuals may experience a numbing or tingling of the mouth upon drinking kava due to its local anesthetic action. High doses of kavalactones can also produce CNS depressant effects (e.g., sedation and muscle weakness) that appear to be transient.

Illicit Uses:

Information on the illicit use of kava in the U.S. is anecdotal. Based on information on the Internet, kava is being used recreationally to relax the body and achieve a mild euphoria. It is typically consumed as a beverage made from dried kava root powder, flavored and unflavored powdered extracts, and liquid extract dissolved in pure grain alcohol and vegetable glycerin. Individuals may consume 25 grams of kavalactones, which is about 125 times the daily dose in kava dietary supplements.

Intoxicated individuals typically have sensible thought processes and comprehensive conversations, but have difficulty coordinating movement and often fall asleep. Kava users do not exhibit the generalized confusion and delirium that occurs with high levels of alcohol intoxication. While kava alone does not produce the motor and cognitive impairments caused by alcohol, kava does potentiate both the perceived and measured impairment produced by alcohol.

The American Association of Poison Control Centers reported 42 case mentions and 21 single exposures associated with kava in 2010.

User Population:

Information on user population in the U.S. is very limited. In the 1980s, kava was introduced to Australian Aboriginal communities where it quickly became a drug of abuse. It has become a serious social problem in regions of Northern Australia.

Distribution:

Kava is widely available on the Internet. Some websites promoting and selling kava products also sell other uncontrolled psychoactive products such as *Salvia divinorum* and kratom. Several kava bars and lounges in the U.S. sell kava drinks.

The National Forensic Laboratory Information System (NFLIS) and the System to Retrieve Information from Drug Evidence (STRIDE) do not indicate any kava reports.

Control Status:

Kava is not a controlled substance in the U.S. Due to concerns of liver toxicity, many countries including Australia, Canada, France, Germany, Malaysia, Singapore, Switzerland, and the United Kingdom have placed regulatory controls on kava. These controls range from warning consumers of the dangers of taking kava to removing kava products from the marketplace.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 202-353-1263, Telephone 202-307-7183, or Email ODE@usdoj.gov.