

Imported food risk statement

Kava (*Piper methysticum*)

Scope: Kava (*Piper methysticum*) root, or kava beverage obtained by aqueous suspension of kava root, as currently permitted for sale in [Standard 2.6.3](#) of the Australia New Zealand Food Standards Code.

Recommendation and rationale

Does kava present a potential medium or high risk to public health:

Yes

No

Rationale:

- Kava is a term used to describe the kava plant or kava beverage. Kava beverage in traditional Pacific cultures is prepared by suspending the ground roots, rhizomes or basal stems of select kava plant varieties in cold water.
- Moderate use of kava beverage has not been associated with specific health problems. However, ongoing high quantity consumption has been associated with ichthyosiform skin rash, altered liver function and a decline in general health.
- In rare cases, hepatotoxicity has been reported following consumption of kava beverage and complementary medicines containing kava. The aetiology of these cases is not well understood but may relate to factors including non-traditional varieties of kava plants, methods of extraction, drug interactions, or aflatoxin contaminated kava.
- There is insufficient safety data to support the safe use of kava in children or pregnant or lactating women. Kava should not be consumed by these population groups.
- Kava beverage prepared using kava plant varieties without a history of safe use, or using aerial parts of the kava plant, are not safe for human consumption.
- Kava plant and kava beverage are susceptible to microbiological contamination and should be cultivated, stored and prepared accordingly. Kava beverage should be consumed soon after preparation and not stored or transported.
- Kava, excluding any kava product that is listed on the Australian Register of Therapeutic Goods, is listed in Australia as a Schedule 4 poison in the current Poisons Standard.

General description

Nature of the product:

Kava is a term used interchangeably for the kava plant or kava beverage. The kava plant (*Piper methysticum* G. Forst) is a robust perennial shrub belonging to the Black pepper family *Piperaceae*. Kava beverage is a cold water extraction from the roots, rhizomes or basal stems of select kava plant varieties, and has been consumed for over 2000 years in social ceremonies particularly by South Pacific communities¹. Fresh kava material is chewed or ground until it is fine and fibrous, soaked in water and then strained. Dried material is ground finely, wrapped in cloth and infused in water. Drinkers of the traditionally prepared kava beverage report a sense of relaxation and tranquillity, and the drink is taken to promote a sociable attitude².

There are more than 200 varieties of kava plant. Not all kava varieties are suitable for making kava beverage and each Pacific culture with a history of traditional kava consumption has known varieties that are safely used for making kava beverage (Appendix 1). These traditional safe varieties are also referred to as 'noble' kavas.

Tu-dei (two day) kava varieties are used to make kava beverage, but are not traditional varieties and are known to produce longer psychotropic experiences, as well as nausea and other hangover effects (e.g. headache, dizziness, lethargy)^{3,4}. Other kava plant varieties are known as medicinal kava and are used by Pacific herbalists in traditional medicines. Wild kavas (*Piper wichmannii*) are not consumed as a food or medicine.

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Kavalactones are pharmacologically active compounds naturally present in the kava plant. Nineteen kavalactones have been isolated from the kava root, of which six are major constituents (kawain, dihydrokawain, methysticin, dihydromethysticin, yangonin and demethoxyangonin)⁵. Kavalactones have muscle relaxant, local anaesthetic, anxiolytic and anticonvulsive properties². These psychotropic effects appear to occur without reducing cognitive performance⁶.

In addition to kavalactones, piperidine alkaloids and flavokawains are biologically relevant chemical compounds present in kava plant. Toxicity testing and chemical structure analysis suggests that both substance classes present a safety concern to human health⁷⁻⁹.

The quantities of kavalactones, piperidine alkaloids and flavokawains removed from kava plant varies depending on: 1) extraction methods (cold water kava beverage preparation, compared with another extraction methods)^{5,10}; 2) the kava plant variety (noble compared to tu-dei)¹¹; or 3) specific kava plant organs used for extraction (roots rhizomes or basal stems, compared with aerial portions)¹².

The aerial portion or peelings of the kava plant are not consumed as part of traditional kava beverage preparations. Beverages prepared using the aerial parts of the kava plant contain lower quantities of the desired kavalactones, whilst containing higher concentrations of piperidine alkaloids¹².

Tu-dei varieties are known to have higher levels of kavalactones, contributing to longer psychotropic effects. However, tu-dei varieties also contain higher levels of flavokawain B and represent a greater risk of adverse health outcomes from kava consumption^{9,11}.

Kavalactones are metabolised in the liver by cytochrome P450 enzymes. Adverse drug-drug interactions may occur when kava beverage is consumed simultaneously with other drugs that are cleared by common cytochrome P450 metabolic pathways^{13,14}. Consumption of kava beverage in combination with alcohol can increase the deleterious effects of alcohol on cognitive function¹⁵.

There is evidence that kava beverage is highly susceptible to microbial growth and is unsuitable for storage, even with refrigeration^{16,17}. Kava beverage should be consumed soon after preparation to avoid spoilage.

The approved regional Codex standard for kava products states that kava root should be free from visible moulds, soil and foreign odour¹⁸. Mould-produced aflatoxin has been detected in kava root¹⁹. Contamination of kava plant product with aflatoxin-producing moulds is a suspected cause of hepatotoxicity events that have resulted in severe illness¹⁹⁻²¹.

Herbal extracts of kava are used in dietary supplements in New Zealand and in complementary medicines listed on the Australian Register of Therapeutic Goods. Such kava-containing products are commonly marketed for the treatment of anxiety, insomnia, premenstrual syndrome and stress. Kava in this form is prohibited as an ingredient in food^{22,23}.

Kava (both plant and beverage, including extracted kavalactones) is listed as a Schedule 4 poison in the current Poisons Standard. Kava products that are listed on the Australian Register of Therapeutic Goods are exempt from scheduling²⁴.

Adverse health effects:

Although reversible, consuming high quantities of kava beverage within a short timeframe can cause⁶:

- sedation
- ataxia
- paralysis of the extremities
- extra pyramidal movements
- hearing loss
- impaired vision
- unconsciousness

Regular consumption of high-quantities of kava beverage is associated with continuing adverse health effects such as:

- **Ichthyosiform skin rash** - the most commonly observed side effect of ongoing high-quantity kava beverage consumption is a form of ichthyosiform skin rash or kava dermatopathy. Kava dermatopathy is characterised by dry, flaky skin and yellow discolouration of skin and nails. These effects are reversible once consumption has been discontinued⁶.
- **Altered liver function** – The health effects of kava beverage consumption in Aboriginal communities documented consistent changes in liver function tests in heavy kava drinkers. These changes appear reversible, returning to normal within 1-2 months after kava use is stopped^{6,25}.

Reports of hepatotoxicity associated with medicinal products containing kava extracts emerged in Europe in 1998²⁶. However, observed differences in the nature of these hepatotoxicity events is not consistent with a shared aetiology³. The method of extraction for herbal kava preparations, drug interactions with other medications, the use of tu-dei kava

General description

in the manufacture of herbal preparations and potential contamination of kava used for herbal preparations with aflatoxin-producing fungi, have all been proposed as the cause for a sudden appearance of these adverse events^{3,9,12,20,27-30}. Notably, Pacific cultures that regularly consume kava beverage prepared from traditional kava plant varieties have a history of safe use without producing endemic hepatotoxicity illnesses³¹.

- **General physical health effects** – Other effects on overall health of ongoing heavy consumers of kava have been reported with varied levels of evidence quality. These include decreased body weight, nausea, loss of appetite, conjunctivitis, loss of sexual drive and raised cholesterol⁶.

There is insufficient safety data to support the safe use of kava in children or pregnant or lactating women. Kava should not be consumed by these population groups³².

Kava consumption may impair the ability to safely operate a motor vehicle³³.

Consumption patterns:

Kava is not currently available in Australia as a commercial food commodity. No information on kava consumption is captured by the 2011-2012 Nutrition and Physical Activity Survey³⁴ or the 2012-2013 Australian Aboriginal and Torres Strait Islander Health Survey³⁵.

In the 2007 National Drug Strategy Household Survey, 1.8 % of Australians 14 years and older reported being offered or having the opportunity to use kava within the last 12 months³⁶. This was highest for males in the 20-29 year old age group at 3.4%³⁶.

Kava was introduced to Arnhem Land in 1982. It was thought that kava beverage may provide a safer alternative to alcohol³⁷. Kava consumption is still prevalent in select indigenous communities in East and West Arnhem land, despite import restrictions that have been in place since 2007³⁷. The extent of kava use and resulting effects on public health in these populations is poorly understood³⁷.

As part of the advice provided to the Department of Health in 2016, the Advisory Committee on Medicine Scheduling highlighted that several jurisdictions have had historical problems with kava misuse, especially with powder and liquid forms³⁸.

Risk factors and risk mitigation:

Key risk factors:

- Imported product containing tu-dei or wild kava varieties.
- Product spoilage and contamination with mycotoxin-producing moulds or other toxin-producing microorganisms.
- Contamination of kava through the supply chain (from primary production through to final preparation) with bacterial and/or viral pathogens
- Potential for growth of bacterial pathogens (due to lack of kill-step) in prepared kava beverage.
- Contamination of imported product with parts of the kava plant that are not peeled roots, rhizomes or basal stems.
- Introduction of kava into a population without culturally established consumption patterns.
- Influx of kava into communities that already demonstrate a high-levels of kava beverage consumption, such as select communities in West and East Arnhem land³⁷.

Risk mitigation strategies^{18,22}:

- Kava plants should be cultivated using Good Agricultural Practices and be a kava variety with a history of safe use (Appendix 1).
- Imported kava for sale should be made with peeled roots, rhizomes or basal stems. Harvested product should be free of leaves, bark, pests and mould, and be stored and transported under conditions that minimise spoilage and/or mould growth.
- Kava beverage should be consumed soon after preparation and not stored or transported.
- Products for sale in Australia should display the requisite warnings, as specified in the Australia New Zealand Food Standards Code.
- Continued enforcement of individual State and Territory-specific restrictions on the import and sale of kava.

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Surveillance information:

In the four years prior to the 2007 restriction on commercial kava imports, an average of 70 tonnes of kava, worth approximately \$850, 000 AUD, was imported into Australia per annum[§].

The current quantities of kava plant product brought into Australia in personal luggage is not recorded by Australian Border Force.

Standards or guidelines

Australia and New Zealand

Standard 1.1.1 of the Australia New Zealand Food Standards Code (the Code) states that food for sale must not consist of, or have as an ingredient or a component, kava or any substance derived from kava, unless expressly permitted by Standard 2.6.3^{22,23}.

Standard 2.6.3 of the Code states that prohibition of kava does not apply to kava root (raw or dried) or the beverage obtained by aqueous suspension of kava root. These products are required to display the warning statements 'use in moderation' and 'may cause drowsiness'²².

Codex

In 2020, the Codex Alimentarius Commission approved a regional standard for kava products for use as a beverage when mixed with water. This standard applies to the roots, rhizomes or basal stems, fresh or dried, of noble cultivars of the kava plant (*P. methysticum* G. Forst)¹⁸.

The following Codex Standards are also relevant in the prevention of foodborne illnesses associated with kava:

- Codex general principles of food hygiene (CXC 1-1969)
- Code of Hygienic Practice for Low-Moisture Foods (CC 75-2015).

Pacific Nations

Funded by the Australian and New Zealand Governments, the Pacific Horticultural & Agricultural Market Access (PHARMA) Program has worked with Pacific Nations to develop standards for kava to ensure product safety. Through this program, Vanuatu³⁹, Fiji⁴⁰, Samoa⁴¹ and Tonga⁴² have developed standards for the production of kava suitable for export as a food beverage.

Management approaches

Australia – Kava is currently classified as a drug under the Customs (Prohibited Imports) Regulations 1956 and requires permission to be imported commercially into Australia⁴³. The issuing of permits to commercially import kava for non-medicinal purposes ceased in 2007. Incoming passengers into Australia are allowed to bring up to 4kg of kava (in the root or dried form) into Australia in their accompanied baggage⁴⁴. State and Territory-specific restrictions prohibit kava for non-medicinal purposes in Western Australia and the Northern Territory.

Kava (including extracted kavalactones) is listed as a Schedule 4 poison in the current Poisons Standard when used in preparations for human use, except when included in products on the Australian Register of Therapeutic Goods²⁴.

Prior to 2007, the whole or peeled rhizome of kava was exempt from scheduling in the poisons standard, instead being managed under the National Code of Kava Management. However, following an Australian Government policy effort to reduce the kava abuse in select indigenous communities, import restrictions were imposed that stopped the commercial importation of kava into Australia³⁸. In 2008, the National Drugs and Poisons Schedule Committee (NDPSC) concluded that the whole or peeled rhizome form of kava should no longer be exempt from scheduling, recognising the hazards to public health associated with kava substance abuse and that import restrictions were in place. This position was reaffirmed by the NDPSC in 2009 and again by the Advisory Committee on Medicine Scheduling in 2016³⁸.

On 11 October 2019, the Prime Minister, the Hon Scott Morrison MP, announced that the Australian Government is launching the kava pilot program, which involves the relaxation of kava-related import prohibitions with the introduction of a permit-based system. The Government's decision on future kava importation requirements will be informed by monitoring and evaluation conducted throughout the kava pilot program⁴⁵.

[§] Information supplied to the Australian Department of Foreign Affairs and Trade by Australian Border Force.

Management approaches

Germany – In 2002, the German Federal Institute for Drugs and Medical Devices (Bundesinstitut für Arzneimittel und Medizinprodukte; BfArM) cancelled the drug registrations of products containing kava extracts, based on the hepatotoxicity concerns and a lack of evidence to support clinical efficacy. These measures effectively banned kava products in Germany and created the precedence used to impose kava restrictions in other international markets. The decisions taken by the BfArM were overturned by the courts in 2014 when it was determined that the available evidence did not justify the regulatory action taken²⁹. Approval was again withdrawn in 2019 when BfArM determined that there was a lack of data demonstrating anxiolytic effects⁴⁶.

Vanuatu - The Kava Act No. 7 (2002) prohibits the sale or export of two-day kava and wild kava, unless requested to do so by a person outside Vanuatu⁴⁷.

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Appendix 1 – Kava plant varieties with a history of safe use as kava beverage

Samoa ^{18,41}	Vanuatu ^{18,39,47}	‡Hawaii ¹⁸
<i>Ava La'au</i>	<i>Ahouia</i>	<i>Hanakapi'ai</i>
<i>Ava Le'a</i>	<i>Amon</i>	<i>Hiwa</i>
<i>Ava Loa</i>	<i>Asiyai</i>	<i>Honokane Iki</i>
<i>Ava Mumu</i>	<i>Bir Kar</i>	<i>Kumakua</i>
<i>Ava Talo</i>	<i>Bir Sul</i>	<i>Mahakea</i>
	<i>Biyaj</i>	<i>Mapulehu</i>
Fiji ^{18,40}	<i>Borogoru</i>	<i>Moi</i>
<i>Damu</i>	<i>Borogu</i>	<i>Nene</i>
<i>Dokobana loa</i>	<i>Ge gusug</i>	<i>Opihikao</i>
<i>Dokobana vula</i>	<i>Ge vemea</i>	<i>Pana'ewa</i>
<i>Loa kasa balavu</i>	<i>Ge wiswisket</i>	<i>Papa 'Ele'ele</i>
<i>Loa kasa leka</i>	<i>Gorgor</i>	<i>Papa 'Ele'ele Pu 'upu'u</i>
<i>Matakaru balavu</i>	<i>Kelai (or Miaome)</i>	<i>Papa kea</i>
<i>Matakaru leka</i>	<i>Leay</i>	
<i>Qila balavu</i>	<i>Melmel (or Sese)</i>	‡Papua New Guinea ¹⁸
<i>Qila leka</i>	<i>Melomelo</i>	<i>Kau kupwe</i>
<i>Vula kasa balavu</i>	<i>Miela</i>	
<i>Vula kasa leka</i>	<i>Naga miwok</i>	‡Federated States of Micronesia ¹⁸
<i>Yalu</i>	<i>Olitao</i>	<i>Rahmwahnger</i>
<i>Yonolulu</i>	<i>Palarasul</i>	
	<i>Palasa</i>	‡Solomon Islands ¹⁸
Tonga ^{18,42}	<i>Palimet</i>	<i>Feo</i>
<i>Kava 'Akauhina</i>	<i>Pia</i>	<i>Tahu</i>
<i>Kava 'Akaukula</i>	<i>Poivota</i>	<i>Temo</i>
<i>Kava Fulufulu</i>	<i>Pualiu</i>	
<i>Kava Kofe</i>	<i>Puariki</i>	
<i>Kava Lekahina</i>	<i>Silese</i>	
<i>Kava Lekakula</i>	<i>Urukara</i>	
<i>Kava Valu</i>		

‡ FSANZ is unaware of any local kava quality and safety standards that are specific to kava produced in this region.