



Kava Bar Standard Survey

The Current Situation



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Port Vila

Vanuatu

KAVA BAR STANDARD SURVEY

THE CURRENT SITUATION

Ruth Amos

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Government of Vanuatu

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2 LIST OF ACRONYMS

FTDCAU	Food Technology Development Centre and Analytical Unit
MTTCNVB	Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business
OPSP	Overarching Productive Sector Policy
MALFFB	Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity
DoT	Department of Tourism
DoH	Department of Health
PWD	Public Works Department
DCIR	Department of Customs and Inland Revenue
Dol	Department of Industry
ORCBDS	Office of the Registrar of Cooperatives and Business Development Services
DARD	Department of Agriculture and Rural Development

3 EXECUTIVE SUMMARY

Kava, known scientifically as *Piper methysticum* forst, a member of the Pepper family has been cultivated for thousands of years and used as a traditional drink in all traditional ceremonies in Vanuatu, Fiji, Tonga, Samoa, Hawaii and in Micronesia. Three different research methods have traced the origins of kava to the northern part of Vanuatu due to the large number of varieties found in that area.

The six active components namely desmethoxyyangonin, dihydrokavain, yangonin, kavain, dihydromethysticin and methysticin, collectively known as kavalactones create the relaxed sensation that comes when a “shell” is consumed. Three major varieties namely Noble, Medicinal and Two day exist with the latter having a high concentration of both kavain and flavokavain while the two former varieties have high concentrations of kavain besides the five other kavalactones.

As a cash crop, kava exports peaked in 1998 with the export of 749 metric tonnes worth VT888,000,000, but the lack of quality control and the reports of deaths allegedly from liver hepatotoxicity caused by the consumption of kava products caused a ban on the importation of kava. This ban resulted in the drafting of the Kava Act in 2002.

With regards to domestic kava consumption, the Vanuatu National Kava Strategy 2016-2025 observes that local consumption and ancillary activities alone would gross over VT2 billion per annum. The 2009 census reports that one third of the population in the 25-49 year age group are the highest consumers of which 66.6% are male and 10% are female.

In an attempt to tackle the quality issue, the Government has ensured that quality of exports and in processing is addressed in the enactment of Acts such as the Kava Act and the Food Control Regulation 2009 and at the policy level such as the Overarching Productive Sector Policy (OPSP), Vanuatu National Kava Strategy 2016-2025 and through various documents such as the Vanuatu Kava Standard.

Although laws exist to regulate quality of kava and the food safety of kava processing areas and kava bars, it is not enforced well by the relevant authorities such as the Municipality, Shefa Province and other implementing agencies.

This study surveyed 57 kava bars and found out that the 26.3% of kava bars import from both Malekula and Pentecost, 17.8% kava bars import kava from other islands besides Malekula and Pentecost with 7% importing kava from Malekula only or Pentecost only. With regards to the kava bar owner's knowledge of the Kava Act, 37% did not know the varieties they were ordering from the farmers. In terms of processing of kava for kava juice, there are many scattered around the town, however, 31.6% of kava grinding occurs at Sakary Anabrou, 13.2% at La SMET and 10.5% at Sakary Fresh Water. Most of the cups and other utensils used in the kava bar,

45.6% washed the utensils properly at the end of the business hours in cold water and detergent but rinsing the cups only in cold water during business hours.

Out of the 57 kava bars surveyed for microbial contamination 12.3% showed Salmonella contamination on the cup, 7% on the serving spoon and 10.5% on the bench while 14% of the kava bars showed both Salmonella and E. coli contamination on the cups and 16% showed microbial contamination of the serving spoon and benches. Overall 49% show the presence of both Salmonella and E. coli, 21% show salmonella contamination and only 2% does not exhibit the presence of either.

Salmonella contamination may possibly come from the practice of spreading green kava on the ground or from poor storage practices. E. coli contamination may come from poor sanitation practices in the majority of the kava bars.

In terms of the quality of the juice, the amount of fibre suspension in the juice determined the quality of the filtration process. On average the 98% of the kava bars had an average of 18% fibre remaining in the juice since rice sacks are most often used for filtration. During this period of time, 93% of kava bars were selling Noble kava while 7% sold Two day kava.

The volume of kava sold at kava bars ranged from 58 mL to 122 mL while the price per shell remained at 50VT per serve. Price did not change with volume as it was used as a marketing tool for the kava bar. Income earned also ranged from VT8150/20L bucket to VT17200/20L bucket.

This study highlights the need for more collaboration between kava bar owners and relevant authorities such as Dol, DARD, MOH, Municipality and SHEFA Province to ensure that Kava Bars adhere to the laws that will guide them to improving their premises, the processing of fresh kava and to maintain the quality of the kava juice they produce.

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- Stephen Toara

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- The owners of the 57 kava bars surveyed including the 6 that gave us permission to trial out the Audit Checklist.

5 INTRODUCTION

5.1 BACKGROUND

Kava also known scientifically as *Piper methysticum* forst., is a member of the Pepper family. For thousands of years it has been cultivated and used as a traditional drink and in all traditional ceremonies in Vanuatu, Fiji, Tonga, Samoa, Hawaii and in Micronesia.

Vanuatu is believed to be the home of kava (Lebot. V, Cabalion P., 1988) (Makin, 2015) since it has 229 varieties of which 12 are noble varieties, 79 are medicinal varieties, 126 are Two Day varieties and 12 are wild varieties (Kava Act, 2002). Three research methods have been used to trace the origins of kava. These are the linguistic affinity, population migration and main domestication center. In terms of linguistic affinity this can be separated into two zones, namely the southern and northern zones of Vanuatu. In the southern zone the name of kava has Polynesian influence while in the north the names are generic Melanesian names. This further suggests that there may have been a population migration from East to West possibly originating from Papua New Guinea. However, the main domestication center for kava was the northern part of Vanuatu demonstrated by the large number of varieties prior to spreading throughout the Pacific (Lebot and Cabalion).

5.1.1 Chemistry

Kava contains six active components called kavalactones that create the relaxed sensation that comes from consuming a “shell” of kava. These kavalactones are called: desmethoxyyangonin (DMY), dihydroxykavain (DHK), yangonin (Y), kavain (K), dihydromethysticin (DHM) and methysticin (M).

Noble and Medicinal varieties are found to be high in Kavain (K) while Two Day varieties are high in dihydromethysticin (DHM) and dihydrokavain (DHK) (Kava Quality manual, 2013). Two Day varieties are also known to contain flavokavains which are believed to have been the cause of the liver hepatotoxicity (Teschke et al, 2011), (Zhou et al, 2010) which led to the EU kava ban.

5.1.2 Kava as a cash crop

5.1.2.1 Small beginnings

Pre-independence (before 1980), Kava was mostly consumed in rural areas and limited to traditional ceremonies only. There were no kava bars in Port Vila and Luganville. In 1973, Charlot Longwah, a private businessman of Chinese-Vietnamese origin, started buying green kava from Pentecost and sold icy kava beverage mostly through his store which he aptly called “Kava Store” (Tarere, 2014), (Tarere, n.d.).

Three months before Charlot Longwah’s store opening, John Selwyn Binihi became the first kava proprietor to commercialize the traditional drink by opening the first nakamal or kava bar in Port Vila. This was followed by the opening of another kava bar in Port Vila in the Nambatri

Area (Tarere). Thus was the beginnings of the kava bar business. Today there are more than 300 kava bars within the Municipal and Efate Rural areas. Kava bars can be found in almost all the islands of Vanuatu as a means of income generation.

5.1.2.2 Kava Exports

Kava exports peaked in 1998 which saw Vanuatu export 749 metric tonnes, worth VT888,000,000 (approximately US\$8,880,000) (Tarere). The lack of control of kava quality eventually led to the European Union (EU) kava ban when liver hepatotoxicity deaths related to the consumption of kava pills were reported. As a result a Kava Act was drafted in 2002 by the Department of Agriculture to regulate the standards of kava on both domestic and international markets. The loss in revenue due to the ban stands at USD3 billion (Garae, 2015) (Joshua, 2016).

To date, kava exports contribute a huge shipment in domestic export earnings (VNSO, 2016). In May of this year, 2016, kava exports amounted to VT100 million representing a surplus of VT93 million compared to VT7 million in the same period in 2015.

5.1.3 Domestic kava consumption

On the domestic scene, an agricultural survey in 1987 and 1988 estimated that Vanuatu's urban kava bars consume 400 metric tons of kava annually. The estimated gross annual revenue earned by kava bars were US\$916,000 (VT100 million) of which kava farmers earn US\$15,000 (VT 1.6 million) (Kava, Cash and Custom in Vanuatu, n.d.). According to the Agriculture Sector Policy 2015-2030, the "*local consumption of kava is huge although a definitive figure has never been given to this market sector. However it is estimated that local sales is about three times the value on export.*" The Vanuatu National Kava Strategy 2016 – 2025 observes that local consumption and ancillary activities surrounding local consumption would gross over VT2 billion per annum. In comparing this with the amount earned from exports, this is a VT1.9 billion difference.

According to the 2009 census one third of the population consumes kava, of which 53% are male and 8% are female. The highest consumers of kava are within the 25 – 49 year age group of which 66.6% are male and 10% are female. The 1987 and 1988 agriculture survey also found that each male consumed on average 321 shells of kava per annum and if calculated according to VT100 per shell, the average male spends around VT32,100 per annum at a kava bar (Lamboll, 1988).

5.1.4 Policy Linkages

The Overarching productive Sector Policy (OPSP) **Priority Thrust on Quality and Safety** focusses on "*Improved quality and safety of agriculture (including processed) products* of which **Strategy 2.3** states the following, "*Strengthen the capacity to monitor the Food Control Act and Food Regulations (provide appropriate human resources and equipment to monitor implementation of regulations).*"

The recently launched Vanuatu National Kava Strategy 2016 – 2025 has proposed a vision which states: "To be the leading producer of quality kava in the Pacific and in the world." To achieve this, the strategy has outlined five objectives which cover the development of a quality consciousness throughout the kava industry, developing and establishing a nationwide planting

program to ensure consistent and sustainable supply, engaging the market, embracing the future by being proactive now and developing the regulatory framework. This Strategy is closely linked with the Agriculture Sector Policy

5.1.5 Kava Act and Food Regulation

The Food Control Regulation (2009) describes the Food Safety standards for Vanuatu. It covers the General Hygiene of food handlers, Certification of food handlers, Display, sale, serving and storage of food, cleaning of food utensils and food premises, construction of food premises, food processing, packaging and transportation, and labelling. These are the minimum requirements of food safety.

The Kava Act provides the legal framework for the standard of kava for domestic use and for export. This Act focusses on the age and variety of kava that should be traded in the domestic and international market.

Despite this, the domestic market has been overlooked for many years in terms of its adherence to these two pieces of legislation resulting in the sale of two-day kava varieties and the poor food safety practices

5.2 CURRENT SITUATION

Currently kava bars are not well regulated. The Municipality has responsibility for the implementation of their By-laws which lists a number of requirements that a potential kava bar needs to have in order to start operating such as running water and toilets. This is checked by Municipal Inspectors, however, the level of these checks to ensure that minimum food safety requirements described in the Food Control Regulation or a building code for kava bars are adhered to needs to be reviewed.

Inspectors have a checklist that is used during inspection which does not include the Food Safety Requirements in the Food Regulation. In 2015, the Municipality issued a 60-day notice to all kava bars in an attempt to “impose measures under the Municipality act (CAP 126) including related by-laws to regulate the industry with the view to preserving the health of the consumer”. It instructed all kava bar owners, operators and managers to ensure that proper toilets were installed and available to kava bar consumers and “to refrain as well as eliminate the re-using of cups, bowls or similar items in kava bars” (Simon, 2015). At the time of this survey, little had changed.

In terms of the quality of kava juice served at the Kava Bars, in general most Kava bar owners are not aware of the variety of kava purchased from farmers in the islands. Spot checks by the Food Technology Development Centre and Analytical Unit (FTDCAU) on kava juice quality have found that Two day kava varieties have been sold at a number of kava bars. This is usually evident when there is a severe shortage of noble varieties.

With the increasing number of tourists that are arriving in Vanuatu who want a taste of the real Vanuatu, it is essential that serious action is taken with regards to the level of food safety in all

food businesses owned and operated by locals such as Kava Bars, Market Food Vendors, and Roadside Food Vendors as these are the areas that are seriously out of control.

The Ministry of Agriculture, Forestry, Fisheries, Livestock and Biosecurity (MALFFB) in the 2015 Kava Quality Campaign stated that at both levels, domestic (Kava Bars) and export, the trade of kava needs to be seriously regulated (Karae, 2015).

5.3 PURPOSE OF THIS SURVEY

This survey is a study of the current kava bar standards focusing on the hygiene level, the variety of kava sold, level of enforcement of the Food Regulation and Kava Act, in both the Port Vila Municipal Area and its periphery and the varying volumes of kava sold at the standard price of 50 and 100VT. It identifies areas that need to be improved so that kava bar standards can satisfy the requirements of the Food Regulation and Kava Act.

6 METHODOLOGY

6.1 DATA COLLECTION

The data was collected over a period of 12 days, from May 16 to May 31st, 2016. A total of 57 kava bars randomly selected out of over 200 kava bars were surveyed in the Port Vila Municipal area and its periphery, Table 1. All kava bar owners were also interviewed (Appendix A) to gather data on their knowledge of the two pieces of legislation that kava bars operate under, namely the Kava Act and the Food Regulation. Information was sought on methods of cleaning, processing and on the variety of kava sold.

Table 1 Number of kava bars surveyed in the Port Vila periphery

Area	Number of kava bars surveyed
1. Tagabe-Bladiniere area	6
2. Black Sands area	2
3. Anambrou area	5
4. Namba Tu	4
4. Tebakor – Man Ples area	2
5. Malapoa	1
6. Freshwater	5
7. Beverly Hills	1
8. Independence Park – Sea Side	6
9. Pango	1
10. Erakor road	3
11. Namba Tu Lagoon	2
12. Etas	1
13. Tagabe Bridge	2
14. Main town area	1
15. Bellevue	1
Total	57

6.2 SAMPLE COLLECTION

6.2.1 Microbial sample

Swab samples were taken from the cups, serving spoon and bench of each kava bar using both dry and wet swabs during the operating hours...

6.2.1.1 Wet swab sampling

Samples collected using the wet swab was stored at room temperature for 8 hours after collection before streaking on to MacConkey agar. The wet swabs used were 3M Sterile swabs.

6.2.1.2 Dry swab samples

Dry swab samples were streaked onto MacConkey agar immediately after collection to prevent loss of sample. MacConkey agar was used as it is a selective and differential medium designed to isolate and differentiate types of bacteria based on their ability to ferment lactose.

This study looked for the presence of the bacteria *Salmonella* and *Escherichia coli* or *E. coli* only as a direct indication of the level of hygiene.

6.2.2 Kava Juice quality

50ml samples of kava juice was collected from the serving bucket at each kava bar and transferred to a 50mL graduated centrifuge sample bottle using a funnel and stored at room temperature.

6.3 TREATMENT OF SAMPLES

6.3.1 Microbial samples

The swab samples were transferred to pre-prepared MacConkey agar plates and left at 35 degrees in a Contherm Incubator for 24 hours. After 24 hours the plates were checked for growth of *Salmonella* and *E. coli*. *Salmonella* is recognized by the appearance of white colonies



Photo 1: Plate showing high *Salmonella* growth from a kava bar (far left), plate showing no growth swabbed from a bar bench in a hotel (centre) and right, plate showing high *E. coli* growth from a Kava bar.

Photo 1(left) on the plate and red colonies showed the presence of *E. coli*, Photo 1 (right). This was compared to a control plate. The control was a clean MacConkey agar plate. Swab samples taken off hotel bar benches showed no bacterial growth Photo 1 (centre).

6.3.2 Kava juice quality



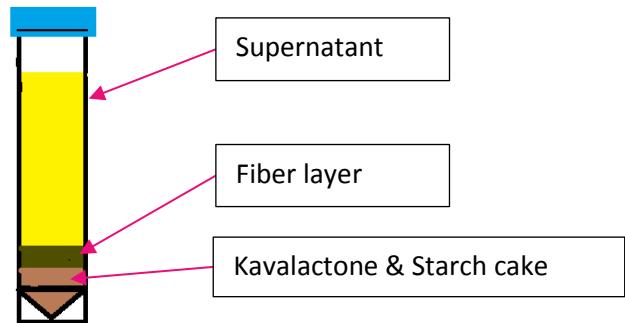
Photo 2: Kava bar staff filtering kava juice through rice or flour bag.

for filtering.

The quality of kava juice is measured by how “clean” it is and the variety used. The term “clean” refers to how well the juice is filtered. This can be seen by the amount of fibre that settles at the bottom of the tube on top of the fine particulate matter. The fine particulate matter is called the “cake”. This is made up of kavalactones chemically bound to starch molecules (Figure 1).

The suspension is made up of root fibre and starch-kavalactone “cake” that passes through the rice bag sieve that is most commonly used

Figure 1: Two layers formed in the Kava Juice Precipitate.:.



2.3.2.1 Preparation and testing of kava juice sample.

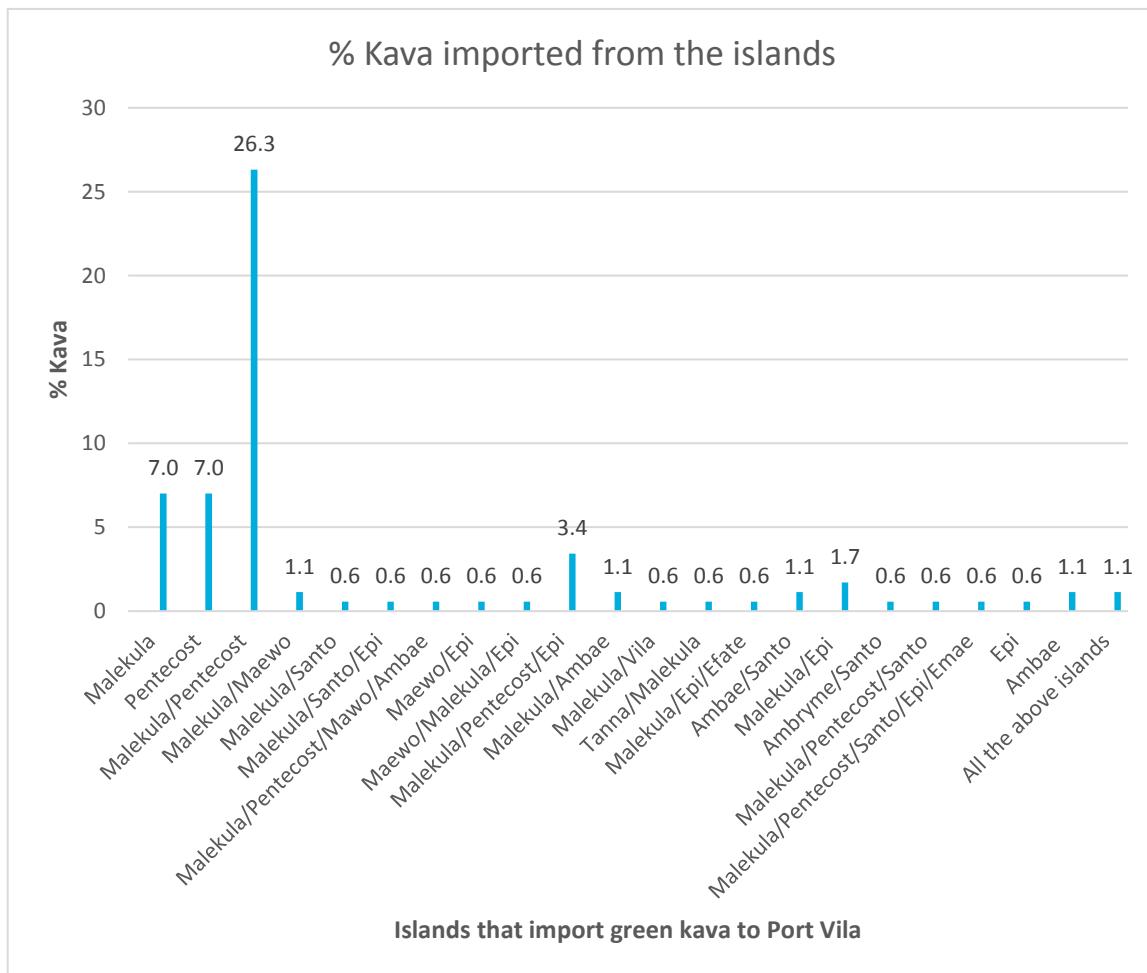
6.3.3 Filter quality test.

The 50mL sample of the water extract is left to stand at room temperature for 2 days in the graduated centrifuge bottle to allow the suspension to settle. The centrifuge bottle graduations are in 10mL increments. The total amount of precipitation is measured from the centrifuge bottle. The juice is then mixed thoroughly by shaking and the mixture filtered through a pre-weighed filter paper. The filter paper and residue is left to air-dry for 1 day then transferred into a desiccator for storage until weighing. Weight of the filter paper and residue is recorded. The percentage fibre is calculated from the wet height of the fibre converted to a mass and the dry weight.

6.3.4 Colorimetric test

The dried filter paper is then transferred into a 250 mL beaker and 150mL Acetone is added. The mixture is refluxed for 30 minutes on a magnetic hotplate-stirrer. After 30 minutes, refluxing is stopped and the mixture is left to cool off with stirring. The mixture was filtered and the colour of the extract compared with a kava-extract colour chart to determine the variety of kava used in the preparation of the juice. The varieties are confirmed by checking the absorbance values in a UV-Vis colorimeter.

Figure 2: Islands that export green kava to Port Vila



7 FINDINGS

7.1 INTERVIEW

7.1.1 Islands where kava is imported

From the interviews with the kava bar owners, it was found that the islands that supplied green kava were mostly Malekula, Pentecost, Maewo, Santo, Epi, Ambae, Tanna and Emae. From the data presented in Figure 2, majority of the green kava is imported from only two islands in Vanuatu, Malekula and Pentecost. Green kava from Malekula only (7%), Pentecost only (7%), Malekula and Pentecost combined (26.3%), while other islands (17.8% in total) supplemented the supply from Malekula and Pentecost.

The possible factors that relate to the high number of green kava imported to Port Vila may be due to regularity of shipping services and large scale farming of kava on these islands.

7.1.2 Kava Bar owners knowledge of noble and two day kava varieties

When owners were interviewed on whether they knew the variety of kava they were buying from the farmer, 72% reported that they knew what they were ordering while 38% said they did not know. With regards to the selling of two-day and wild kava, 63% knew that it was against the law to sell these varieties while 37% did not know.

Having this knowledge has not stopped some kava bars from selling two-day varieties or two day adulterated kava. The local clientele can tell when a kava bar sells two-day or adulterated versions as the effect is very different from that of the noble varieties. It is noted that the sale of two day kava are more common during times of shortage of the noble varieties. Kava farmers from the islands of Pentecost and Santo have been known to plant two-day kava for sale specifically on the domestic market (Louze, 2016).

The MALFFB have started tackling this issue by creating the Vanuatu National Kava Strategy 2016-2025.

7.1.3 Kava Processing for Kava Bars

The survey wanted to find out also whether the kava bars processed their own kava or not. It was found that 33 % of them possessed a kava grinder while 67% did not own a grinder and therefore processed their green kava elsewhere. Figure 3 shows that 67% of kava bars process kava at 16 different places around town, with most of the processing occurring at Sakary Anabrou (31.6%), La SMET (13.2%) and Sakary Fresh Water (10.5%).

In terms of where the kava juice was extracted, it was found that kava juice was prepared in the kava bar itself (46%), the exact location of where the preparation took place was not clear, however 40% said they prepared kava juice in the kitchen and only 14% had a special room to prepare the kava juice (Photo 2).

It can be inferred that those areas that experience a high customer number regardless of the location of the kava bar, may be due to a cheaper cost of processing due to larger grinders. The

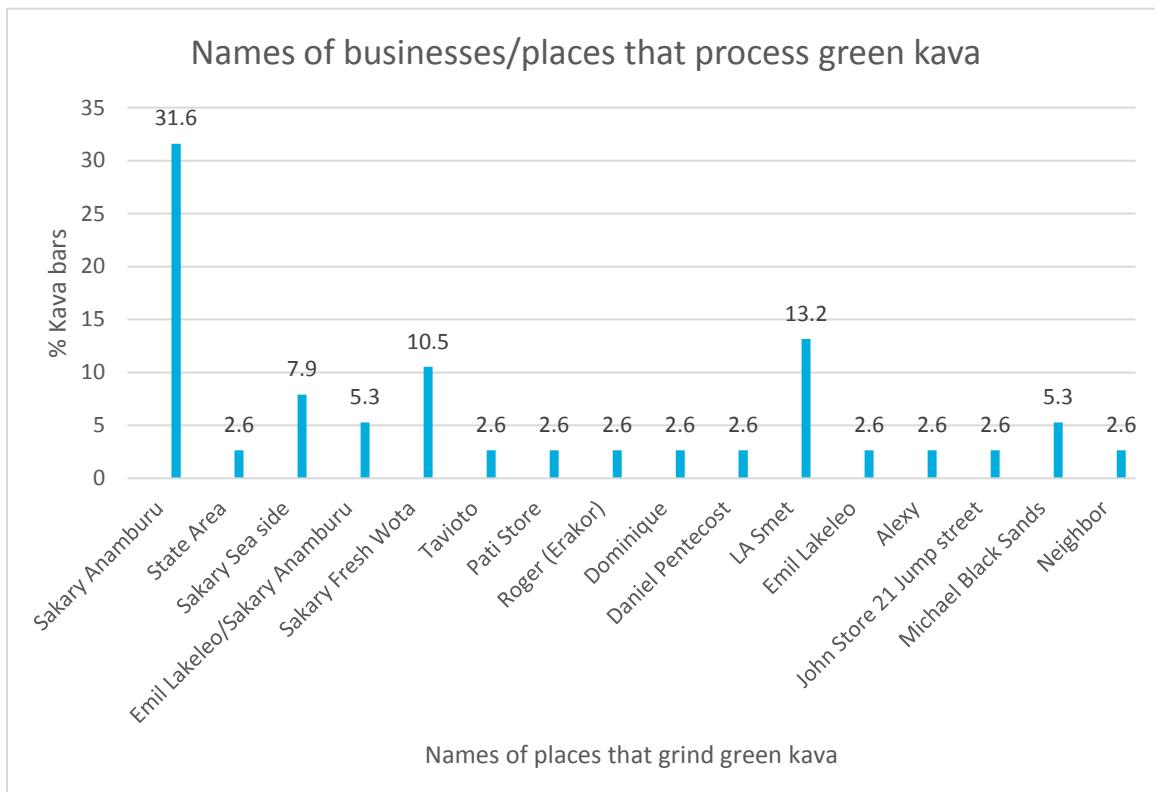
large number of kava processing places also points to the need to have a kava processing quota per area in Port Vila that can be regulated. These kava processing factories should concentrate on kava processing only, that is, bulk grinding and extraction of kava juice only for sale to all kava bars. This would reduce the preparation and processing costs including a significant reduction in time allowing them to concentrate on selling kava juice only.

7.1.4 Cleaning of kava preparation and serving equipment

In terms of the sterilizing of processing equipment and serving utensils, a number of different methods were used as shown in Figure 3. During business hours, the general method of cleaning cups is by rinsing in cold water. The rinse water is often changed only after it becomes too dirty. Washing the serving utensils proper only occurs after business hours.

In the bars that were surveyed, 45.6% said that kava cups were washed with cold water and dishwashing detergent after business hours only, 17.5% stated that kava bar utensils were washed in hot water and dishwashing detergent after business hours only, 15 .8% washed in hot water only and 14% washed in cold water only after business hours. Only 5.3% soaked their utensils in cold water overnight before washing with detergent and 1.8% washed in both cold and hot water.

Figure 3: Business and areas where a green kava grinder is located



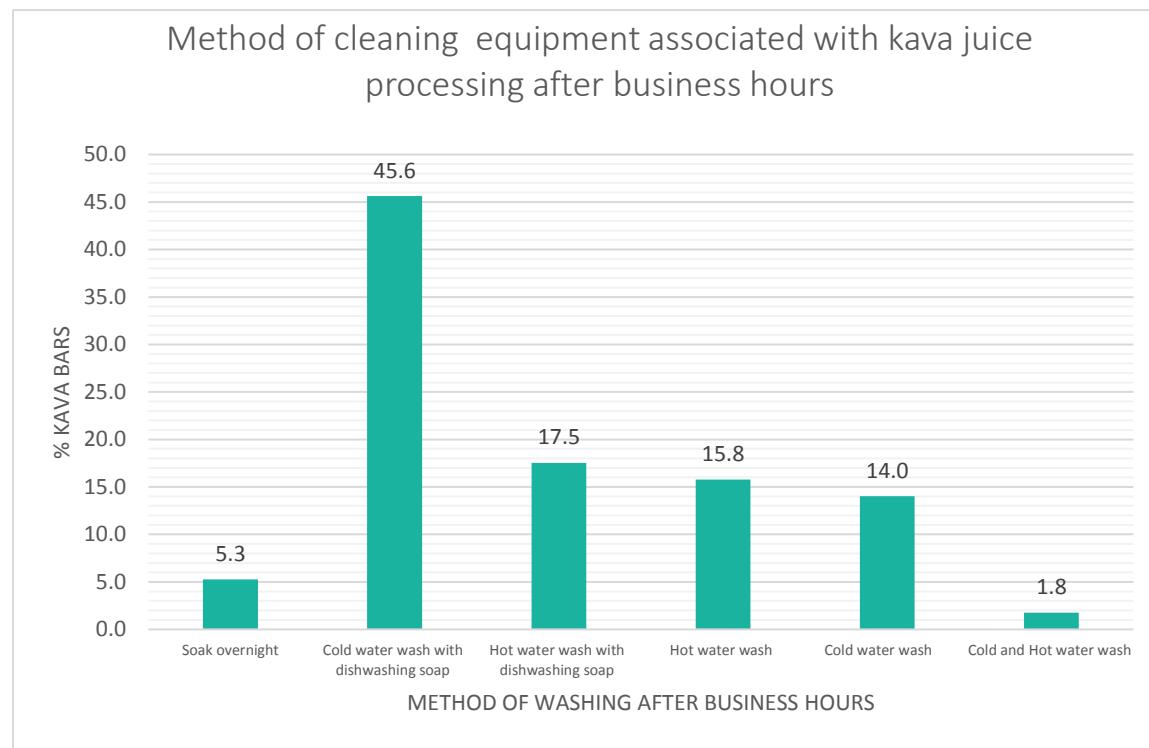
These different methods of sterilizing of utensils and cups after hours prove that kava bar management are not aware that Sub-section 5(2) 1 of the Food Control Regulation that states

that “*all equipment and food contact surfaces must be cleaned by scrubbing with hot water of at least 70 degrees ...*” must be adhered to during business hours also.

A main issue for many kava bars is the number of serving cups or “shells” that they have. This causes many of them to have to recycle these cups during the business hours rinsing cups in between serves. The Municipality has identified this as being unhygienic and had called for all kava bars to ensure that glass cups are used for serving kava and also to ensure that they have a good quantity of cups thereby reducing the need to rinse or share cups.

For smaller kava bars, the likelihood of loss through breakages or customers getting injured through cuts or chipped glass ending up in the kava juice poses real threats not only to the customer but also to the expense budget of the kava bar. Other alternatives need to be sought to reduce this issue such as the use of coconut shells or aluminum bowls or having the kava bar

Figure 4: Methods of sterilizing kava bar utensils after business hours



patrons bring their own cups.

7.1.5 Knowledge of Kava Act and Food Regulation

With regards to the kava bar owner’s knowledge of the Kava Act and the Food Regulation, 42% said they know about these two legal documents while 54% did not know anything about it and 2% heard secondhand information only.

This lack of knowledge is a clear indication of the low level of awareness of these two very important pieces of legislation.

7.1.6 Number of Customers

In terms of the number of customers, 66.7% estimated that they had up to 40 or more customers per day while 28.1% estimated around 50 or more customers per day and only 5.3% estimated that they had 100 to 200 customers per day.

Kava bars can only estimate the number of customers as one customer can pay for any number of “shells” of kava per evening. The majority keep track of their sales through the volume of kava per 20L bucket sold rather than the number of customers.

7.1.7 Knowledge of Testing Services provided by the Food Technology Development Centre (FTDCAU)

As to whether they knew about the existence of the FTDCAU and the testing services provided for kava, 81% said that they did not know that the Centre existed and that they would utilize their services.

The lack of knowledge of the testing services carried by the FTDCAU is due mainly to the lack of advertising of the services and also to the lack of enforcement of quality at the domestic level. Kava bar owners are therefore not forced to ensure that the quality of kava sold are of the noble variety only.

7.1.8 Feelings about the Survey

Many Kava bar owners were happy about the survey and wanted advice on how to improve their Kava bar and other general hygiene practices.

Poor kava bar hygiene standards are not due to the lack of enforcement by the Municipality or the Provincial health authorities, but due to the lack of sufficient information by the authorities as to what kava bar owners should be doing to improve the standard of their kava bars.

7.2 KAVA BAR HYGIENE

Kava bar hygiene was measured by the presence of microbial growth on a MacConkey agar plate compared to a control where no microbial sample had been streaked on to it. The results were qualitative only. The presence of two types of microbes, *Salmonella* spp and *Escherichia coli* (*E.coli*) were being tested for, as the quantity of their presence determined the level of hygiene.

7.2.1 Microbes that spoil food

Salmonella spp. are rod-shaped bacteria that come primarily from chickens and chicken products. It can be passed on to other animals through eating of infected animal or through the feces of the bird. It can cause serious and fatal infections in young children, the elderly and others with weakened systems. This microbe causes food poisoning. The symptoms of food poisoning are severe diarrhea, fever, nausea, vomiting and abdominal pain

E. coli are a type of fecal coliform bacteria found in animal intestines including humans. Its presence shows a strong indication of recent sewage or animal waste contamination. *E. coli* can get into water during rainfalls. It has also been found that most *E. coli* infections have come from eating undercooked g beef. *E. coli* infection can cause severe diarrhea and abdominal

cramps, however, since these are common symptoms of other diseases it is necessary to have stools tested for the presence of this bacteria (Food and Drug Administration, n.d.).

These two bacteria are commonly known as food borne bacteria and can be spread through poor general hygiene.

7.2.2 Types of microbes found on kava bar utensils

Swab samples were taken of the kava bar bench, the cup and the serving spoon to ascertain the presence of both bacteria. The bacteria population of both types on the plate was not included at this stage as this study was merely qualitative in nature.

The presence of microbes per plate is represented by the positive sign (+) and the lack of it is represented by the negative sign (-) (**Table 2**). These results show that 26.3% of the kava bars surveyed had a high presence of *Salmonella* spp. on the cups, serving utensils and benches with 7% of kava bars showing the presence of *E. coli* on the cup, 15.7% on the serving spoon and 15.7% on the bench.

Table 2: The presence of *Salmonella* and *E. coli* on the cup, serving spoon and bench in the surveyed kava bars.

Area	Total number of kava bar surveyed per area	Presence of microbes on					
		Cup		Serving spoon		Bench	
		Salmonella	<i>E. coli</i>	Salmonella	<i>E. coli</i>	Salmonella	<i>E.coli</i>
Bladiniere-Tagabe (21 Jump street)	6	+	+	+	+	+	+
Namba Tu	4	+	-	+	-	+	-
Black Sand	2	+	+	+	+	+	+
Anambrou	5	+	+	+	+	+	+
Tebakor Man Ples	2	+	+	+	+	+	+
Malapoa	1	+	-	+	-	+	-
Fresh water	5	+	+	+	+	+	+
Beverly Hills	1	+	-	+	-	+	-
Independence park – Sea side	6	+	+	+	+	+	+
Pango	1	+	+	+	+	+	+
Erakor	3	+	-	+	-	+	-
Namba tu lagoon	2	+	-	+	-	+	-
Etas	1	+	-	+	-	+	-
Tagabe bridge	2	+	+	+	+	+	+
Main town	1	+	+	+	+	+	+
Bellevue	1	-	-	-	-	-	-
Total	57	15 (26.3%)	7 (12.3%)	15 (26.3%)	9 (15.7%)	15 (26.3%)	9 (15.7%)

Table 3 showed that 12.3% of kava bars exhibited the presence of *Salmonella* spp. only on the cup, 7% on the serving spoon and 10.5% on the bench. The presence of both *Salmonella* spp. and *E. coli* was found on the cups of 14% of the kava bars with 16% showing the presence of both microbes on the serving spoon and the benches.

Overall, 49% of kava bars showed the presence of both *Salmonella* species and *E. coli*, 21% showed *salmonella* only and 2% did not exhibit the presence of either.

Table 3: Percentage of kava bars showing type of microbes on serving utensils and bench

Serving Utensil	Percentage Kava bars showing presence of		
	Salmonella only	<i>E. coli</i> only	Salmonella and <i>E. coli</i>
Cup	12.3%	0	14%
Serving spoon	7%	0	16%
Bench	10.5%	0	16%

Table 4: Total percentage of Kava bars showing *Salmonella* and/or *E.coli* presence

Total Percentage kava bars	Salmonella and/or <i>E.coli</i> presence
49%	Salmonella and <i>E. coli</i>
21%	Salmonella only
2%	None

It is possible that the poor storage of green kava (Photo 3) and the methods of drying on the ground may be the point of contamination by *Salmonella* and *E. coli*. The spread of *E.coli* can also be directly related to the lack of handwashing especially after toilet use.

Studies carried out on water extracts to determine the presence of bacteria in the kava rhizome isolated the following bacteria: *Bacillus*, *Cellulomonas*, *Enterococcus*, *Pectobacterium*, and *Staphylococcus* (Kandakuru et al, 2009). It was concluded that the *Bacillus cereus* and *Staphylococcus* species may produce toxins and cause food borne illnesses (Teschke et al).

It was thought initially that liver hepatotoxicity might have been caused by the use of moldy kava raw material due to the poor storage conditions. Mycotoxins are poisons caused by mold.

*Photo 3: Green kava stored on the floor (left) encourages mould growth and spread out on the ground to dry (right) may be a source of contamination by *Salmonella* and *E.coli*. Courtesy: Dr. Vincent Lebot*



A study

found that kava root contains Ochratoxin A and in other studies it was found that it was naturally contaminated with aflatoxins which would be found in larger quantities in the bark of both the kava rhizome and roots. Both these compounds are potentially toxic to the human liver (Teschke et al). From current observations it seems like mycotoxin contamination is enhanced through prolonged storage in humid conditions encouraging the growth of mould and poor peeling practices.

7.3 KAVA JUICE QUALITY

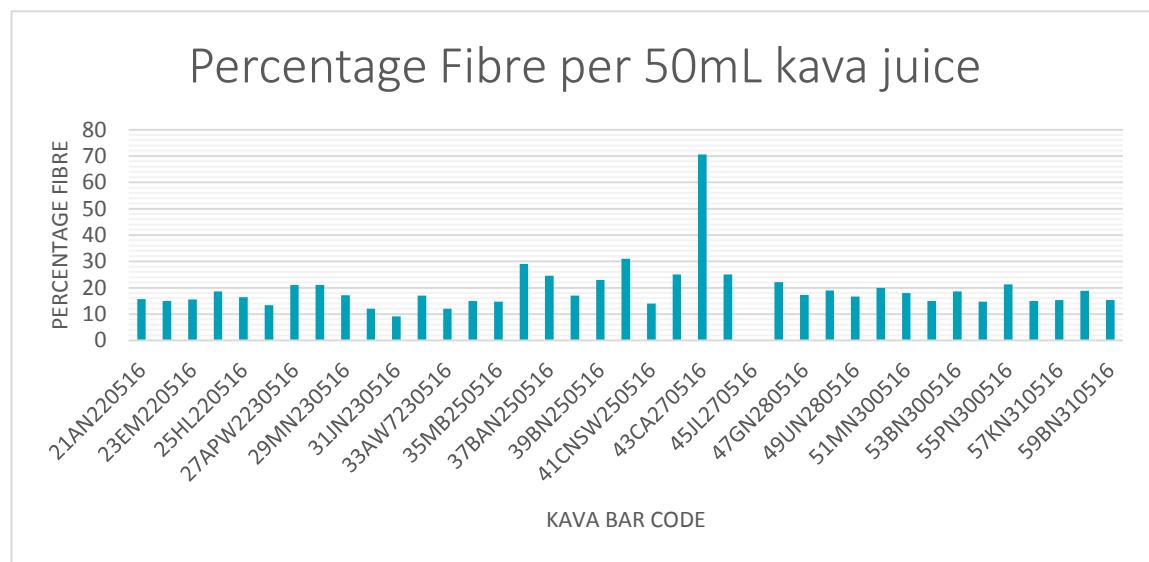
The quality of kava juice was measured using two parameters, the amount of fibre in the juice and the nobility of the variety used.

7.3.1 Fibre content

Kava has a high fibre content. The older the plant, the more fibrous it becomes. The fibre content in the juice determines the quality of the filtration. **Figure 5** shows the percentage fibre per 50mL juice.

The data shows that out of the 57 kava bars surveyed, only one kava bar showed a high percentage (70%) of fibrous residue in the juice while all other Kava bars had an average of 18% Fibre only. High fibre content or bitterness caused by not peeling the root properly is the key culprit in causing the common throat clearing noises often heard at Kava bars after a shell and which can be soothed by gargling with water or by eating a snack from the “20Vt table”.

Figure 5: Percentage fibre per 50mL Kava Juice



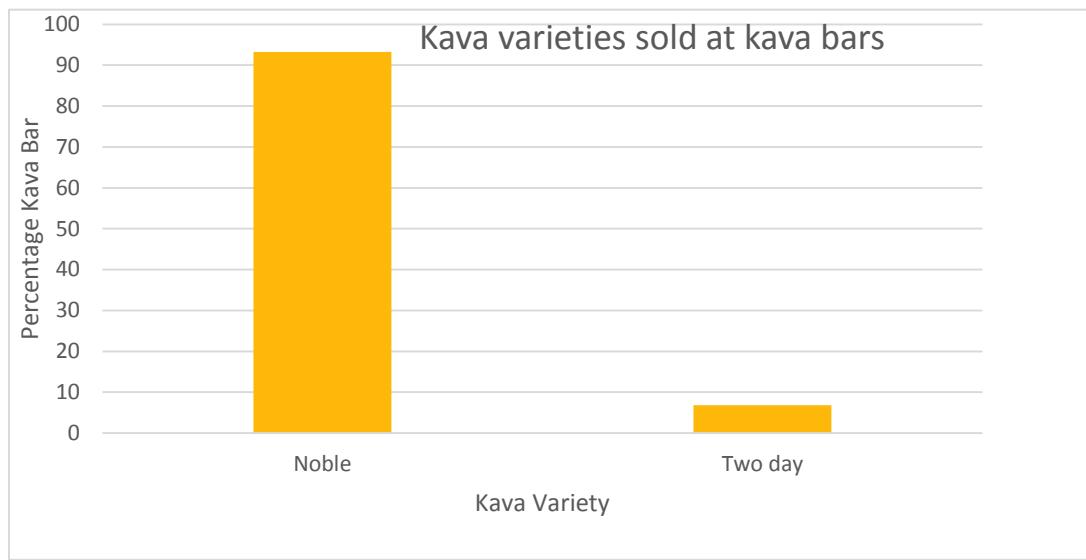
The most common filter for Kava Juice are empty rice bags for the first filtration followed by a second filtration using brand new ladies nylon petticoats or any fabric that have a smaller micron size.

These results show the need for a good filtration system that can remove the fibrous matter ensuring a cleaner juice.

7.3.2 Variety of Kava used to make Kava Juice

The Kava Act states that kava sold on the domestic market must be 3 years old and of the noble variety. The variety of the kava used to make the kava juice was also checked. All samples that

Figure 6: The percentage of noble and two-day kava varieties sold at kava bars



were identified using the qualitative colorimetric test were confirmed using UV-Vis Spectrophotometry at 400nm to verify the variety. Variety was confirmed when the absorbance value for noble kava at 400 nm was 0.69nm and for two-day varieties 0.94nm.

Figure 6 shows that at the time of the survey, from May 16 to 31st, 93% of kava bars were selling noble varieties of kava while only 7% sold the two-day variety or a combination of both noble and two-day. This finding is only a snapshot of the type of kava variety sold at kava bars in Port Vila.

More random spot checks would have to be carried out at different times during the month and the year to get a true picture of the varieties sold in the kava bars.



Photo 4: Kava served into plastic bowls or "shells" using a cut plastic bottle.

7.4 KAVA JUICE VOLUME AND PRICE

Samples of 50VT “shells” of kava were collected to compare the volumes sold at that price. Photo 5 shows the variety in volume for a shell. There is an indirect relationship between the serving volumes and the number of shells sold per 20L bucket of kava juice. That is, the smaller the volume of juice the more “shells” are sold (**Figure 7**).

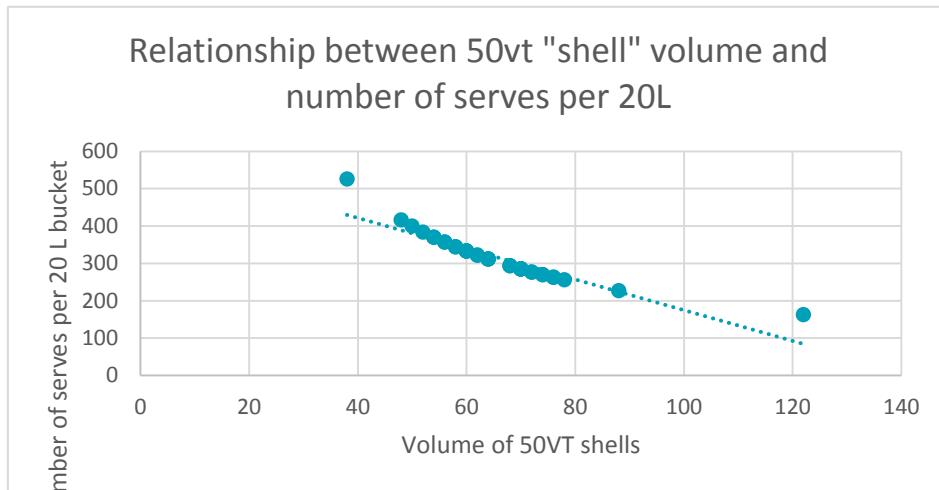


Figure 7: An indirect relationship between the number of serves and the volume of shells

In analyzing the data collected, it is found that the volume of servings for a 50Vt shell ranges from 38mL to 122mL. The reason for this wide range in volume is due to the variety of serving utensils used. Some kava bars use the bottom of plastic bottles cut in such a way as to be able to ladle kava into a shell (Photo 4) while others use a soup ladle or a measuring cup. For a 20L bucket of kava juice, this represents from 163 to 526 shells or servings per 20L bucket.

The great variety in volume of a 50VT shell of kava can be attributed to a number of factors as pointed out by Lamboll , these are: the size of the shell, the variety of kava, the age of the kava, the desired strength of the kava and the availability of food, most commonly known as “20vt”, and credit. Kava bars often use these different factors as a way of competition, also known as “non-price” competition.

In **Photo 5**, it can be seen that the sample in the middle of the picture has the greatest volume, consumers will see this as value for money, so they will frequent this kava bar for that reason only. This then becomes the way by which kava bars market themselves. On the other hand, certain kava bars may sell one particular variety of kava only, thereby marketing themselves according to kava variety. In this way, the price of kava has remained the same for the past 30+ years.

The current practice of selling kava requires a lot of man time to prepare and sufficient volumes of kava juice to make a good profit. A kava bar owner will do the following tasks to keep his business running:

- Pay communications costs (to order kava directly from a farmer)
- Pay for freight costs from the island to Port Vila

- Pay for transport costs to source kava from a middle man in Port Vila or to transport the kava from the wharf to the kava bar premises.
- Pay for the required quantity of kava needed for that day at middle man price

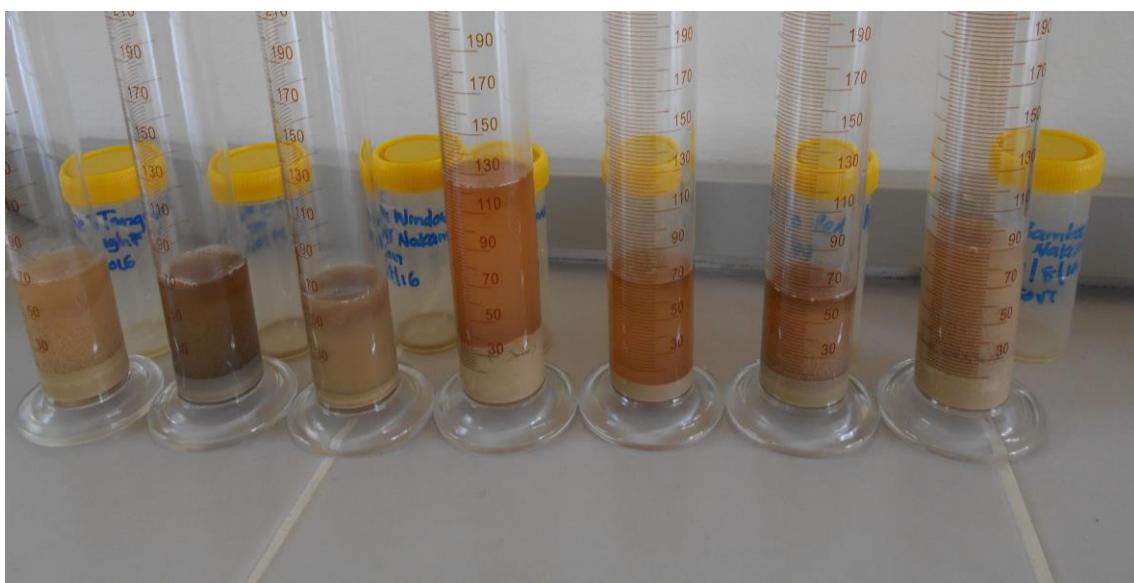


Photo 5: The varying volumes of a 50VT serving of kava juice.

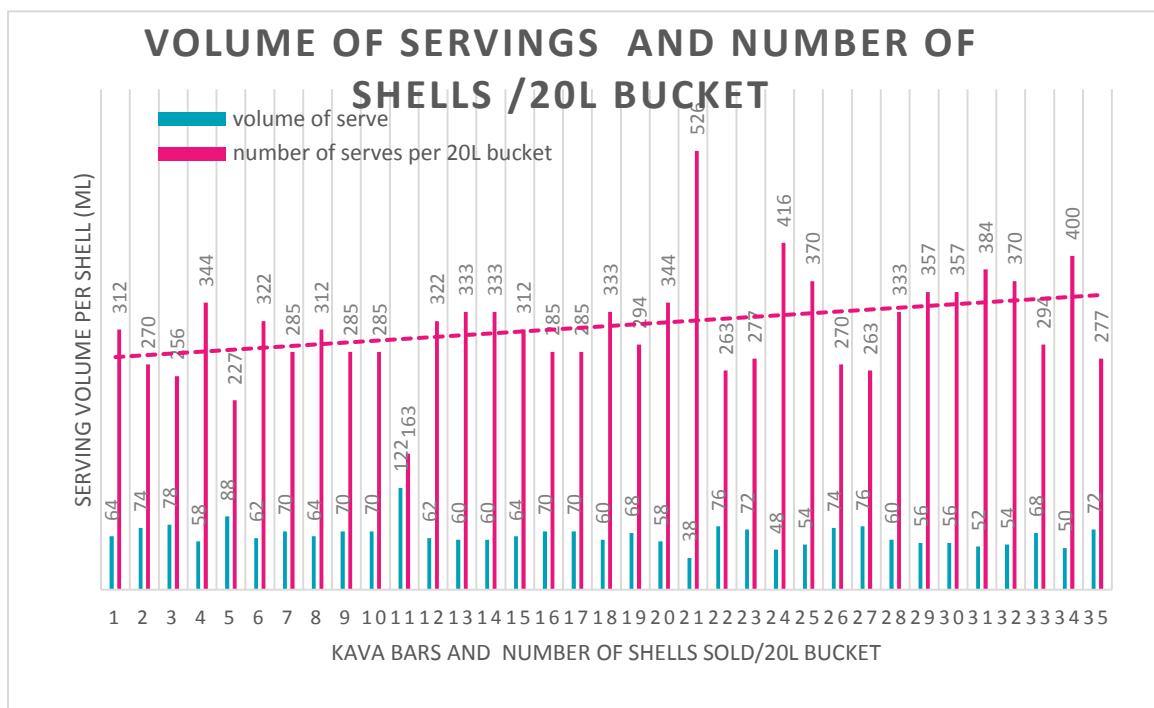


Figure 8: Comparison of serving volume vs number of servings per 20L bucket

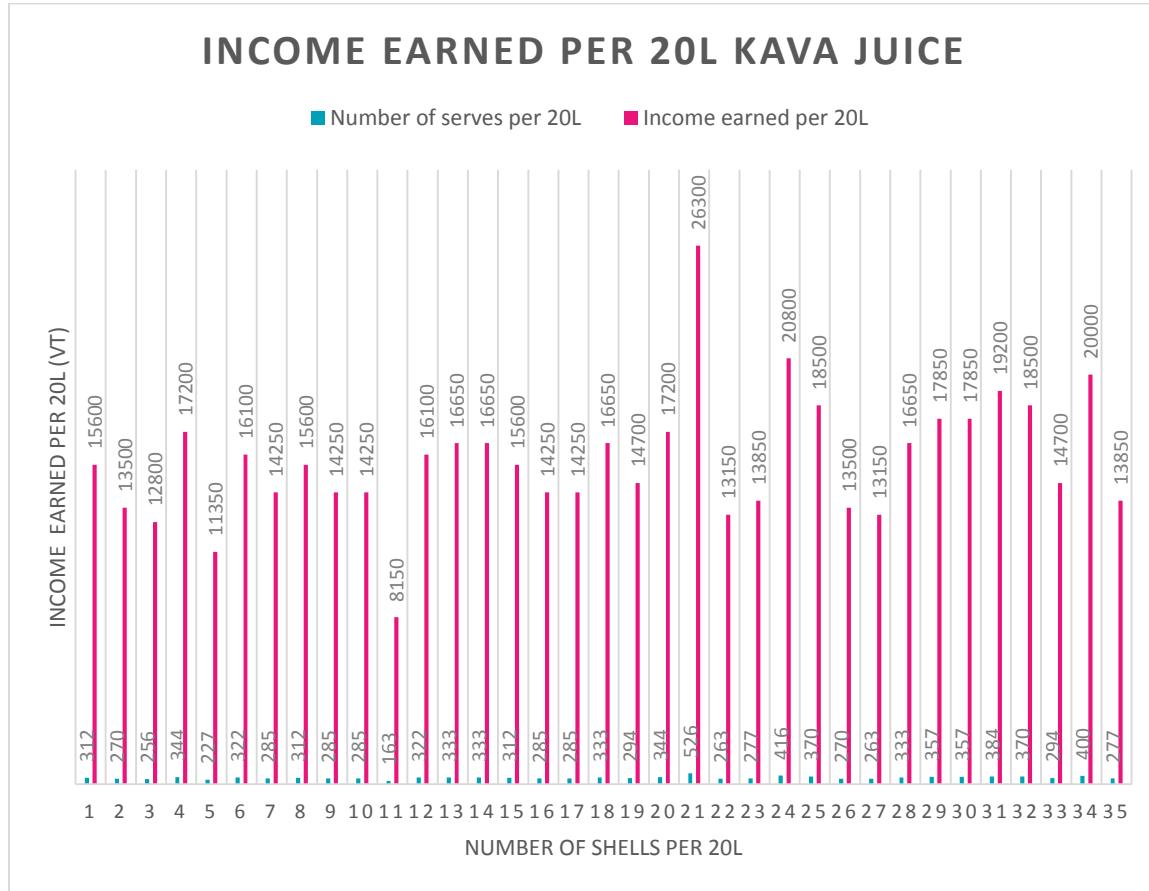
- Preparing the kava for processing requires water, so therefore, water becomes a cost
- Pay for labour costs
- Pay for grinding if they do not own a grinder, if they do own a grinder then electricity is an additional cost.
- Juice extraction requires water, therefore water becomes an expense
- Renting a booth or “window” each day
- Purchase of serving utensils and other additional requirements for the kava bar.
- Time spent selling kava juice

While this is only an observation, an in depth study of the costs of running a kava bar needs to be carried out to find the true picture and to confirm its profitability.

A longtime kava bar business owner stated that currently kava bars are struggling to maintain kava quality and stay in business with green kava selling at a price of VT600 to VT1000 per kilogram while the price of a shell of kava still remained at VT50 to VT100. Ideally these prices should now increase to VT100 for the latter and VT200 for the former (Marango, 2016).

An analysis of the income earned by a sample of kava bars shows that it ranges from VT8150 per bucket to VT26300. Using the current selling price of green kava which is VT700 per kg, a good kava mix would require 7kg of green kava to make 20L of juice, this would cost VT4900. If the kava bar owner sells 526 serves of 38mL of juice, the amount earned would be VT26,300 (USD240) giving a profit of VT21,400 (USD195) while another kava bar owner selling 163 serves of 122mL of juice would earn VT8150 (USD74) giving a profit of VT3250 (USD29) only.

Figure 9: Income earned from the sale of 20L of kava juice.



This data shows the need to standardize the base concentration of the juice so that all bars start off with one concentration, say 7kg to 20L of water, and from there they can adjust the concentration by adding more water depending on the tastes of their customers. There is also a need to standardize the measuring equipment used to serve kava which in turn will standardize the volume of the juice.

8 CONCLUSION

To conclude, this study has highlighted several important areas. That is that Malekula and Pentecost combined (26.3%) are the main suppliers of kava to Port Vila with all the other islands (17.8%) supplementing that supply. Most of the kava bar owners (72%) know the variety of kava that they buy while 37% do not know which makes it all the more important to have regular spot checks to enforce the Kava Act. This also confirms the knowledge of the Kava Act and the Food (Control) Regulation where only 42% know about these two pieces of legislation while 54% do not know.

The success of the kava bar cannot be measured accurately by the number of customers but by the number of sales. The majority of kava grinding occurs at Sakary Anabrou (31.6%), La Smet

(13.2%) and Sakary Fresh Water (10.5%) showing the spread of kava grinding operations in Port Vila.

The lack of knowledge of the testing services provided by the FTDCAU shows that there has not been sufficient awareness made of the services and also because of the lack of enforcement of quality by the relevant authorities. In terms of the general feelings of the survey, many kava bar owners were happy about the survey and wanted advice on how to improve their kava bar.

The shortage of “shells” in kava bars encourages rinsing in cold water only in-between serves and leaving the proper cleaning until after hours mostly with cold water and detergent (45.6%) increasing the possibility of microbial growth or the spread of harmful bacteria during business hours. The majority of kava bars are contaminated with Salmonella and E. coli as demonstrated by the samples taken of the serving utensils and the benches. This confirms the need to enforce the Food Control Regulation Subsection 5(2) 1. Another possible source of microbial contamination comes from poor storage methods or spreading out of kava on the ground to dry out. Poor storage methods encourages mold growth thus the production of mycotoxins which may cause liver disease.

The study showed that there was a wide range of volumes between 40 kava bars in their serving size. The volume range from 38mL and 122mL serving size represents earnings ranging from VT8150 to VT 26,400 per 20L bucket of kava.

A more collaborative approach between Kava bar owners, Municipality, Department of Public Health, DARD, Dol, DoT and other stakeholders need to be taken to improve the standard of Kava Bars. While the need to keep kava bars as traditional as possible could be argued, the health status of clientele should also be of paramount importance as it can have an adverse effect on the business which for many owners is the sole income earner.

9 RECOMMENDATIONS

This study recommends that:

The current Food/Kava Bar inspection checklist used by the Municipality be **improved** to cover all the requirements of the Food Control regulation and the Kava Act (Appendix B: Checklist).

- The Checklist **be tested** to determine the cost of improving a kava bars hygiene standard to satisfy the requirements of the Food Control Regulation.
- The Department of Tourism (DoT), Department of Health (DoH), Department of Public Works (PWD), Shefa Province, Kava Bar Owners Association, and Municipality **develop** a kava bar building standard to capture the requirements of the Food Control Regulation 2009.
- The DoT, DoH, PWD, Shefa Province and Municipality **develop** a standard for Kava bars.
- The Department of Industry (Dol), FTDCAU, Kava Bar Owners Association **develop** a kava processing standard in line with the Food Control Regulation of 2009.

- The Dol, FTDCAU and Kava Bar Owners Association **agree** on a standard serving volume for kava juice that will allow kava bar owners to earn a good profit.
- The Municipality in collaboration with Biosecurity Vanuatu and the Vanuatu Bureau of Standards carry out **regular spot checks** on kava variety sold at kava bars within Port Vila and with Shefa Province outside the Municipality area to enforce Part 2 of the Kava Act on variety and age of kava sold.
- A Certified kava processing facility be **set up** who will buy directly from farmers and process kava juice in a more hygienic environment and selling kava juice in 20L containers”.
- **Set up** a Kava Registry for kava bars, kava farmers, kava processors and middle men for traceability of kava varieties and to monitor activities surrounding the domestic sale of kava.
- The Municipality, Dol and Department of Customs and Inland Revenue (DCIR) **license** middle men to monitor their activities and to ensure control over kava prices.
- The ORCBDS encourage the **formation** of kava farmer producer Cooperatives to increase quantity.
- The Department of Industry and Department of Agriculture (DARD) to **collaborate** with kava farmers, agents, ship owners on the design of a cheap and affordable type of packaging and handling of green kava to maintain freshness and quality.
- A “five star” award system be **created** for kava bars to encourage kava bar owners to improve the domestic kava bar business.
- Municipality and the DCIR work on **categorizing** Kava bars into the categories listed below and issue different license fees accordingly:
 - Kava Bar with grinding operations
 - Kava Bar without grinding operations
 - Kava Bar renting out “windows” with grinding operations
 - Kava Bar renting out “windows” without grinding operations
- Municipality to **grant** a license to continue operations **only after** the kava bar has been audited and has passed all the criteria in the Kava Bar Standard.
- Kava bars **be allowed** a grace period of 6 months to 1 year to upgrade their facilities to the required standard with regular monitoring by the Municipality Inspectors.
- Inspectors must **collaborate** and **inform** kava bar owners on how to improve their facilities to the required standard.
- Food vendors at kava bars be **registered** so that food safety training can be monitored easily.

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11 APPENDIX

11.1 DOMESTIC KAVA BAR STANDARD SURVEY QUESTIONNAIRE

Where do you get your kava from??

Malekula	
Ambrym	
Pentecost	
Maewo	
Santo	

Others
specify _____

please

Do you know the variety of kava you buy from Farmers??

Yes NO

Do you have your own kava Grinder??

YES NO

If NO! Where do you normally grind your kava??

What are the procedures used to sterilized equipment and materials that are associated in the kava juice making process??

Where exactly does the kava juice mixing take place??

Kitchen at the Nakamal In a crowded/populated area.

Others please specify_____

Do you know that Vanuatu has a Kava Act and a Food Control Act??

- Yes
 NO

Do you know that the selling of a two day kava and Wichmannii is illegal??

- YES
 NO

Give an estimate total of how many clients you have a day??

Did you know about the existence of FTDC-AU and its role in facilitating domestic and international trade??

-

Yes NO If yes Give brief explanation_____

Once completing this survey, will you be able to promote good quality kava in Vanuatu??

- YES
 NO

Will you be able to utilize FTDC-AU services at the end of this survey??

- YES
 NO

11.2 KAVA BARS INSPECTION CHECKLIST

Name Kava Bar:.....Area.....Date of survey/inspection.....

Name of Owner.....Address: Box No.....Tel.....

Category of Kava Bar (tick appropriate one):

Sole proprietor and operator With Grinder without Grinder

Sole proprietor renting out booths With Grinder without Grinder

Name of place where kava is processed.....

	Satisfactory YES	Satisfactory NO	Comments from owners	Compliance	Non compliance	Action needed to be taken
1. GENERAL HYGIENE OF FOOD HANDLERS (Food Regulation Part 2)						
General Hygiene Standards for food handlers						
<u>Explanatory Note for Inspectors:</u> <i>Look for notices</i> <i>Check the cleanliness of all toilets</i> <i>Toilets should not have heavily stained bowls (toilet bowl should not be brown or black)</i> <i>Toilet can be flushed and there is no leakage.</i> <i>It should have an air freshener</i> <i>It should not have a foul or stinky smell</i>						
Are there notices for washing hands?						
Is there a wash basin in the following areas:						
Food handling areas						
In the toilet or outside the toilet						
After using a handkerchief						
After smoking						
After handling raw food or any contaminated material						
After handling raw food and before handling ready to eat food						
Are notices in food handling areas that inform food handlers to spit, smoke or chew tobacco?						
Are there notices in the food handling areas that reminds food handlers do not sneeze or cough over unprotected food or food preparation surface?						
Are toilets clearly visible by users?						
Medical Examination and Health Status of Food Handlers						
<u>Explanatory note for Inspectors:</u> <i>Kava bar owner must have evidence of employee's medical certificates.</i>						
Do all employees produce a medical certificate						
Prior to commencement of work?						
When they are sick?						
When requested by employer?						
Do you have evidence of medical certificate of employees						
3.Cuts or Open wounds						
<u>Explanatory note for inspectors:</u> <i>Check the first aid box to see if it has everything it needs to have.</i> <i>Look for notices</i>						
Do you have a First Aid Box available in all food handling areas?						
Are there notices posted in prominent areas to tell staff what to do when they have a cut or open wound?						
4. Handling of foods						

Are food handlers					
Preparing food					
Packing food					
Serving food (tick the appropriate box)					
Wearing jewelry?					
Touch his/her mouth, ears, eyes, nose with hands while handling food?					
Wipe his/her hands on her cloth clothing other than clean towel, disposable papers?					
Place on food any label, ticket or any other article to contaminate food?					
Place on food any article which has been in contact with persons mouth					
Apply his/her fingers to his/her mouth to moisten them before preparing food?					
2. CERTIFICATION OF FOOD HANDLERS					
5. Food handlers to be certified.					
Do all food handlers have a valid Food Safety Certificate?					
Is the food safety certificate issued by a food authority?					
Are cost of employee training paid by operator or owner of food premises?					
6. Transition period for instances where a food handler does not have a food safety certificate					
Has the food handler worked here more than a year?					
Do your food handlers have valid food safety certificates?					
Is there another food handler with a valid Food Safety certificate?					
Is the food handler with the valid food safety certificate supervising the other food handlers? (Note if none of the food handlers have a valid food safety certificate then the food section must be closed down)					
7. Instances where all food handlers at a food premises do not have a valid Food Safety Certificate one year after commencement of this Regulation					
Have you checked if all food handlers have valid Food Safety Certificates to sell cooked food?					
If none of the Food Handlers have valid Food Safety Certificates then the Kava Bar is not allowed to sell cooked food. The can only sell fruits (with skins still on, such as ripe banana, oranges, mandarin etc.) until all food handlers have valid Food Safety Certificates.					
8. Duty of Owner or operators of food premises					
<i>Explanatory note for Inspectors: Ask the food handlers/vendors or look for notices.</i>					
1. Does the owner/operator of food premises inform all food handlers employed/that sell food of their health and hygiene obligations under this Regulation, and ensure that all such food handlers are given adequate training required under this Regulation?					
2. Do you take all the practicable measures to ensure all food handlers employed at the food premises:					
Do not contaminate the food in anyway?					
do not have unnecessary contact with ready to eat food					
Do not spit, smoke or use tobacco in the premises?					
Are provided with protective clothing when preparing the food?					
DISPLAY, SALE, SERVING AND STORAGE OF FOOD.					
Display and sale of food					
Are ready to eat food enclosed in receptacle or wrapped to protect food from contamination?					
<i>Explanatory note for Inspectors: For II you will need a measuring tape. For III you will need to find out where empty trays and dishes are placed when the food has been sold out. Check the set-up of the Twenty vatou table for: i. the type of food sold at the table (i.e. raw and cooked, raw only, cooked only) ii. Check whether food is covered or not.</i>					

<i>iii. Describe how it is set up, you may need to draw a plan of the position of the table.</i>						
Ready to eat food displayed for sale above 75cm above floor level?						
Trays or containers used with the delivery of ready to eat food deposited on floor/footpath/doorway?						
Are ready to eat food stored in close proximity to raw food?						
2. Animals not to be allowed in the food premises						
<i>Explanatory note for Inspectors:</i> <i>Look for notices.</i>						
Are there notices to inform customers and the public that animals are not allowed on the premises? (the exception are: guide dogs used by blind people and aquatic animals such as: ornamental fish, lobsters, cray fish, eels)						
3. Serving and thawing of food						
Use of tongs and other utensils						
Are tongs and other utensils used to serve food?						
4. Previously used or served food						
Do you sell food left over from a previous sale, stored in a fridge, and then resold the following day?						
Do you sell food that has already been thawed?						
5. CLEANING OF FOOD UTENSIL AND FOOD PREMISES						
1. Protection of food premises, appliance and utensils from contamination						
<i>Explanatory note for Inspectors:</i>						
I. Take Swab						
II. Look for rat feces, cockroach eggs etc. If there are a lot of flies, check where rubbish is kept before it is removed, or whether there is a rubbish tip near the kava bar. Check whether there are dogs around, dog feces within the area.						
III. You will need to take a thermometer with you as you will need to check the temperature of the water.						
IV. Find out how all equipment used for preparing kava is cleaned and/or disinfected. You will need to take a swab of the						
Food appliances are clean?						
Free from vermin						
Free from contamination?						
Eating and drinking utensil wash with hot water of 50 degrees?						
All equipment in contact with raw food or contaminated materials clean and disinfected prior to being used for cooking food?						
2. Cleaning and disinfection						
<i>Explanatory note for Inspectors:</i>						
Temperature of the water need to be taken.						
Name of detergent or other solution need to be recorded.						
Are all equipment and food contact surfaces cleaned by scrubbing with hot water of at least 70 degrees?						
Or detergent?						
Or bactericidal solution?						
Or Steam?						
Or Chemical disinfectant?						
6. CONSTRUCTION OF FOOD PREMISES						
1. Construction of food premises/kava bar						
<i>Explanatory note for Inspectors:</i>						
Here the inspector will need the following tools						
1. Measuring tape						
2. An approved plan from a certified architect						
3. Copy of the building code or section of Municipal act which outlines what the buildings should be like.						
1. Does the food premises have						
I. good ventilation						
II. Protection from dust and car fumes?						
III. Proper waste storage?						
iv. Clear floor space of not less than 3m ² per person that is free of furniture, fittings, stored goods and doors?						

2. Is the distance of the waste storage area: At a practical distance away. Does not obstruct roadways on the premises? Constructed in such a way where it will not contaminate food, potable water, and equipment. Constructed in such a way where it prevents pest infestations.						
2. Protection of food equipment, appliances, fittings and packaging material						
Is the food premises constructed in such a way where food equipment, Appliances, Fittings, Packaging materials are protected from contamination and may be easily cleaned?						
3. Hand washing facilities						
I. Are hand washing facilities installed in the food premises? (i). Inside toilets or outside toilets (ii) Where food is prepared? (iii) Where food is handled or served?						
2. Is the handwashing facility supplied with Potable water? hot water at a temperature not less than 50 degrees Celsius handwashing liquid/soap/dishwashing detergent/bactericidal solution paper towels/clean towels/hot air hand drier						
3. Is the hand washing facility Connected to a drainage system? Drainage system cleaned frequently? Repaired when there is damage to the facility?						
4. Where there is no running water or drainage system and the construction of these conveniences is not practicable given the size of the business, are hand washing basins available? Is the same water used for washing hands also used to wash cooking, eating and drinking utensils? Is the water changed frequently and poured a distance away from the food premises? Is soap provided for washing hands? Is detergent provided for washing of cooking, eating and drinking utensils? Are paper towels/clean cloths provided for drying hands Is water used for washing hands stored in a clean container, accessible and capable of storing sufficient water for the daily operation of the food premises?						
4. Sinks and sanitary fixtures						
Are the sinks and sanitary fixtures used for cleaning and preparing food big enough so that all equipment can be easily and properly cleaned?						
5. Walls, ceilings, partitions and floors:						
I. Are walls, ceiling, partitions and floors in food premises made of Cement only? Cement and local materials? Local materials only?						
II. Are walls, ceiling, partitions and floors in food premises repaired immediately?						
6. Potable Water supply						
<i>Explanatory note for Inspectors:</i> <i>If its Unelco water supply it is definitely treated.</i> <i>All these other water supplies must have a recent water quality test from Unelco or FTDCAU.</i> <i>These will have to be included with all the other papers.</i>						
I. Is the food premises supplied with water from Unelco/VUI River water Ground Well Rain water						
7. Lighting						

I. Does the lighting in the food premises/Kava bar (i). use electricity (ii) use solar (iii) use kerosene lamps (iv) use candles (v) Use other methods of lighting?						
8. Changing facilities and toilets						
I. Are there (i) Suitable and conveniently located changing facilities for staff? (ii) Suitable and conveniently located toilets for staff and clients? II. Are the toilets open directly on to (i) Food handling areas? (ii) Eating or drinking areas? III. Are there handwashing and hand drying facilities in the toilets such as air dryer/paper towels/clean towels?						
9. Connection to reticulated sewage system						
Is the food premises connected to a reticulated sewerage system? If it is not connected to a reticulated sewerage system, is there a proper sewage disposal system according to the relevant National Building Code specifications?						
10. Maintenance of food premises						
Is the food premise kept clean?						
Does the food premises have a bad smell?						
Is it kept in good repair						
Is there an effective and continuous program for pest control?						
11. Use of Pesticides for pest control						
<i>Explanatory Note for inspectors</i> <i>Copy of paid invoices from a certified pest control company needs to be included.</i>						
Is the premises and surrounding areas regularly examined on a weekly basis, for evidence of infestation?						
Are pests controlled without using pesticides? If, no, state types of pesticides used.						
If pesticides are used, are food, equipment and utensils removed or covered to prevent contamination?						
Are contaminated equipment and utensils thoroughly cleaned to remove pesticide residues before being used?						
12. Disposal of refuse and other waste matters from food premises						
Are waste material placed in impervious receptacle with closed fitting cover and left outside food premises?						
Are arrangements made frequently for pick-up and disposal from food premises?						
Is (Are) the Receptacle(s) cleaned and sanitized immediately after being emptied?						
7. FOOD PROCESSING, PACKAGING AND TRANSPORTATION.						
1. Food processing.						
<i>Explanatory note for Inspectors:</i> <i>Certificates should be presented as evidence or personnel will need to be observed and questioned about the processing.</i>						
<i>Note:</i> <i>If the processing is done on site, you may have to observe on site. If it is carried out elsewhere then you will have to go to the processing site to observe. It is important to also take note of the cleaning process of the equipment used before kava is processed.</i>						
Is the food processing supervised by technically competent personnel?						
Is the processing, packaging and storage performed without unnecessary delay?						
Is the processing, packaging and storage performed under conditions preventing contamination or deterioration?						

11.3 LIST OF MATERIALS AND COSTS FOR A KAVA BAR [Prices may change]



cash
Tool Technology Development
Confex & Craft Train Out
Phone: (+678) 7743921/Fax:

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Quote No: 0-260949	Operator: Douglas Regan Vanu
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P.O.Box 201
Port Vila
Vanuatu
Phone: (678) 22385
Fax: (678) 25571
CT # 342384

Code	Description	Qty	Unit	Price	Discount	Amount
200040	FUJI CEMENT General Purpose 40kg WILCO VILA	25.00	Bag	1,000 v1		25,000 v1
200072	MESH Reinforcing FG3 6mm x 600 x 2300 (665)	1.00	Sh	5,680 v1		5,680 v1
200071	STEEL ROD 8mm x 300mm Deformed G310	1.00	LN	240 v1		240 v1
2001120	STEEL ROD D16mm x 6.4M Deformed G30N ASNZ254871	1.00	LN	695 v1		695 v1
2000973	STEEL ROD D12mm x 5.4M Deformed G30N ASNZ254871	1.00	LN	750 v1		750 v1
777667	Sand per m3	1.00	m3	4,800 v1		4,800 v1
777686	CORAL per m3	1.00	m3	7,187 v1		7,187 v1
8004	TOILET Seat Close Coupled S-Trap INOX	1.00	EA	16,350 v1		16,350 v1
102501	PINE NZ 190 x 30 Threaded H3.2 CCA P2 T/W MS08 16.08	6.00	LN	440 v1		2,640 v1
Z26	LOC - ROOFING Corrugated Zinc 26G per metre 13.08	3.00	MT/R	1,165 v1		3,495 v1
1202102450251	NAIL FLT HD GAL 100x4.5 251/KG	1.00	EA	380 v1		380 v1
1202075376265	NAIL FLT HD GAL 76x6.75 251/KG	1.00	EA	380 v1		380 v1
1202125602565	NAIL FLT HD GAL 125x8.8 251/KG	1.00	EA	325 v1		325 v1
942007657452	NAIL FLT HD GAL 50x2.8 24H/KG	1.00	EA	380 v1		380 v1
9310010416570	BOLTIN CLIP NITRIC HDS M12x10 each	1.00	EA	150 v1		150 v1
9310085485367	BOLTIN CUPNUTRCHDG M14x120 each	1.00	EA	165 v1		165 v1
9310088465517	BOLTIN CUPNUTRCHDG M12x150 each	1.00	EA	190 v1		190 v1

**Wilco Hardware
QUOTE**

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cash	Deliver To
F&T Technology Development Co. Ltd.	Cash
S. Artificial Unit.	
Phone: 259178	Fax:

Quote No: 0-260849		Operator: Douglas Regemanu		Expiry Date: 27/09/2016 Processed: 27/09/2016		
Code	Description	Qty	Unit	Price	Discount	Amount
60002010	TILE Ceramic [Floor] 300x100 AS222B [1.6m²/17pos/cn]	1.63	M2	1,190 vt		1,821 vt
101532246262035	DOOR Flush Panel HiCore Door 2440x800x35	1.00	EA	8,745 vt		8,745 vt
931001607026	HINGE LIT OFF Left Hand ZP 120mm CO2	1.00	EA	1,270 vt		1,270 vt
9310308060121	ENTRANCE Set ABIZ CDB SP Perma	1.00	EA	1,775 vt		1,775 vt
201716064	PVC PIPE 100mm x 5.0Mtr DN16 AGIN281340	1.00	LN	4,170 vt		4,170 vt
2310452002552	SILICONE Roof & Gutter Translucent 100gm BOSTIK	1.00	EA	785 vt		785 vt
1090596	BASIN Hand Wall Villa 460 1TH w/Waste Duraplex	1.00	EA	15,910 vt		15,910 vt
2150100	STOVE Gas Cooker Top Glass Cover E5501-1B 48 wilco	1.00	EA	29,300 vt		29,300 vt
1090563	SINK Tap PTFE W/Tap CP [P/E116A] DDE	1.00	EA	5,820 vt		5,820 vt
651346	SINK 1300mm Double Bowl DUO Drain wh/Drain DUoplex	1.00	EA	41,340 vt		41,340 vt
20012242	LAWINEX Nov. M3270 Color/White Matt 1.2m x 2.4m SUN	1.00	EA	1,835 vt		1,835 vt
8300887102263	ADHESIVE Kwik Grip 2L STELLYS	1.00	EA	4,010 vt		4,010 vt

Total: **196,778 vt**

Total VAT: **21,864 vt**

Comments: