Kava in the North

A study of kava in Arnhem Land Aboriginal Communities

Kerryn Alexander

Australian National University North Australia Research Unit
Monograph
Darwin 1985

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The research upon which this monograph is based and its preparation were undertaken in the course of my duties as Research Officer with the Drug and Alcohol Bureau, Northern Territory Department of Health. Field work was undertaken in 1984 and 1985 in coastal communities in East Arnhem Land of the Northern Territory.

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I would also like to thank Mr David McDonald, of the Drug and Alcohol Bureau, for his very valuable contributions and to thank members of the Yirrkala community for their assistance with the field work.
Introduction

A refreshing astringent drink which produces nothing more than a tingling sensation in the mucous membranes of the mouth and a short-lived numbness of the tongue (Holmes, 1979a, 107).

Kava has medicinal qualities of not a little power. Drunk to excess it acts like opium, and the habit once formed cannot easily be broken....The habitual kava drinker may be recognised by his fishy-looking eyes and the scaly appearance of his skin (Adams, 1890, 117-20).

Since early European travellers first came into contact with kava, there have been major discrepancies in descriptions of the kava drinking experience. Reported effects range from references to kava as a powerful habit forming drug, to a substance that produces a mild but pleasant state of tranquillity. This controversy continues to exist with the current use of kava in Arnhem Land Aboriginal communities. Some people associated with these communities support and encourage kava use, while others are totally opposed to it. Many uninformed rumours are circulating concerning the physical properties, medical effects and contemporary uses of kava in Arnhem Land.

This paper provides factual information on kava's chemical and pharmacological properties, refers to its use in the South Pacific and outlines factors concerning its current use in Arnhem Land Aboriginal communities.
WHAT IS KAVA?

Physical description

Kava is prepared from the plant *Piper methysticum* forst, a tropical shrub of the family *Piperaceae* (Pepper). The generic name *Piper* comes from the Latin for pepper and the species name *methysticum* from a Greek word meaning intoxicant. The plant has thus become known as the intoxicating pepper (Shulgin, 1973).

*Piper methysticum* grows naturally throughout Melanesia, Polynesia and Micronesia and is cultivated for domestic use on many islands in this region (Hansel, 1968). Its characteristic features are long stemmed, heart shaped leaves, knotty branches and small flowers (Gatty, 1956). The part used to make kava is generally the rhizome (the bulky root stock) or the fine root system, with in some cases, the base of the stem being used. Plates 1 and 2 show young plants, plate 3 an older larger plant and plate 4 the roots of *Piper methysticum*.

Preparation of the kava beverage

The methods for preparing the kava plant for drinking fall into two main categories.

Fresh root methods

The methods traditionally used throughout the Pacific involve the chewing, grating or pounding of the fresh root until fine and fibrous. The chewed or shredded root is then soaked in water, strained and drunk.

Dried root methods

The root or other plant matter to be used is dried and pulverised. The powder is then wrapped in cloth and infused in water, much like a giant tea bag. This is the method of preparation most widely practised today. In several countries, the powder is produced commercially and sold in small bags.

With both methods, the beverage is usually mixed in a large bowl and shared by a group of drinkers using a single cup. The chewed, fresh kava preparation is reported to be far more potent than the grated, pounded or dried kava. The increased potency has been attributed to a chemical transformation induced by the action of saliva on the plant matter.
Plate 1: Young *Piper methysticum* plant

Plate 2: Young kava plants in a village garden
Plate 3: Full grown kava plant

Plate 4: Roots of kava for sale in village market
This has not, however, been scientifically proven (Gregory et al., 1981). Other factors affecting the strength or potency of the kava beverage are outlined below.

The variety of the plant used. A number of varieties of *Piper methysticum* have been identified and are said to vary widely in their pharmacological characteristics. Vanuatu kava is reported to have the highest concentration of active ingredients of all varieties so far tested (J Ellis, 1984).

The portion of the plant used. Fijian kava, the type frequently used in Arnhem Land, has different grades depending on the part of the plant used. Kasa is the lowest grade, made from the plant stem. Lavena is prepared from the rhizome (main part of the root). Waka is the strongest grade made from the fine root system and the type most frequently used in Arnhem Land (Fiji Markets, Sydney, pers. comm.).

The soil in which the plant is grown. Active principles in any plant vary enormously with respect to the soil in which they are grown (Efron et al., 1979).

Degree of dilution of beverage. The amount of kava used per unit of water varies considerably from place to place. In Fiji, the amount of powdered kava used to produce a bowl of many servings is less than what would be used of the Vanuatu fresh root to produce one to two cups to be consumed by a single individual (Holmes, 1979b).

The pattern of use. Kava drinking may or may not accompany the consumption of food. It may be taken at different times of the day and in different quantities. All these factors affect its absorption into the body and its resultant effects.

The cultural context and expectation effects on the drinker. The cultural context, religious and secular sanctions and the behaviour of other kava drinkers all influence the amount of kava taken by a given individual and the way that it will affect him or her. Those who expect or desire intoxicating effects are likely to experience them (Holmes, 1979b).
These variables make it extremely difficult to establish a 'usual' or 'normal' level at which kava is consumed. As discussed below, the way kava is used by a community has been traditionally controlled by the cultural context in which it has evolved.

Chemical and pharmacological properties

Several investigations of the chemical and pharmacological properties of kava have been conducted (Hansel, 1968; Shulgin, 1973; Klohs, 1979; Meyer, 1979). The active chemical constituents have been determined as a series of approximately twelve α-pyrones, which are referred to as kava pyrones or kava lactones. The chemical structure of the kava pyrones is described by Shulgin (1973) and Klohs (1979). All the pyrones are physiologically active, their differences being quantitative rather than qualitative in nature.

Extensive animal studies have been conducted to determine the pharmacological properties of both the isolated chemicals, and the total extract of Piper methysticum (Meyer, 1979; Singh, 1983). The results of these studies are confirmed when the extracted chemical compounds are given to humans (Pfeiffer et al., 1979). The major pharmacological actions of kava are as follows:

- mild, centrally acting relaxant properties which induce generalised muscle relaxation and ultimately a deep natural sleep, and
- local anaesthetic properties which are experienced as a numbing of the mucous membranes of the mouth and tongue when the beverage is drunk.

Despite these consistent findings, little agreement exists as to the pharmacological classification of kava. Although its actions are characteristic of a sedative, its use is social rather than individual and it leads to conviviality rather than to escape (Shulgin, 1973). It has been concluded, however, that kava's sedative/relaxant properties are relatively mild—'compared to the modern synthetic central relaxants, all of the kava congeners (active chemical constituents) are relatively inactive' (Pfeiffer et al., 1979, 160).

It should be noted that no pharmacological studies have been published which assess the effects of the widely used powdered kava preparation on humans.

Both medical and anecdotal reports suggest that frequent and heavy kava consumption may cause further physiological effects. References to dry or flaky skin in regular kava drinkers appear throughout the literature (Gatty, 1956; Finau et al., 1982). The most thorough description of a kava caused skin condition, termed kani, is documented in the Fiji Medical
Journal (Frater, 1976). Kani is characterised by a pattern of light and dark bands on the skin, the light bands being smooth and the dark bands, rough and scaly. The following points are relevant to the expression of the condition:

regular (almost daily) drinking of kava is necessary before it appears, the period varying from months to a year or more;

kani is more readily seen in dry weather than when the humidity is high;

it is most likely that kani results from a vitamin B deficiency attributed to the influence of kava on body metabolism, and the condition is cured when kava drinking is reduced.

A discolouration, or yellowing of the skin, is also associated with the consumption of large quantities of fresh kava (Pfeiffer et al., 1979). Two yellow pigment materials have been isolated from the plant which provide an explanation for this phenomenon (Shulgin, 1973).

Reports from early missionaries and explorers in the Pacific maintained that heavy consumption of fresh kava paralysed the legs, making it difficult to walk (Holmes, 1979b). Similarly, recent animal studies indicate that large doses of the chemical compounds isolated from kava, produce ataxia and ascending paralysis, followed by complete recovery (Meyer, 1979). A paralysing effect has not, however, been adequately demonstrated in humans drinking the kava beverage. In fact, any numbness of the legs has been accounted for by the associated habit of sitting cross-legged during long kava drinking sessions (Shulgin, 1973).

Owing to its chemical and pharmacological properties, kava has numerous medicinal uses, including analgesic, anticonvulsant, fungicidal, antiseptic and diuretic properties. It has been used as a traditional medicine in many parts of the Pacific for centuries. The European pharmaceutical industry also has a steady demand for kava. For example, it is used in preparations which have been produced and sold in Europe for about 20 years, such as Kavaise for infections of the urinary-genital system (J Ellis, 1984).
Map 1: The Pacific Regions in which kava has traditionally been used.
HOW KAVA IS USED IN THE SOUTH PACIFIC

Extent of kava use

Two indigenous ethnic groups occupy the islands of the Pacific. The dark skinned Melanesians inhabit the area bounded to the North by New Guinea and the Solomon Islands, on the east by Vanuatu and Fiji and to the south by New Zealand, whose population, however, does not belong to this group. The second group is that of the Polynesians and Micronesians with lighter skins. They inhabit the islands to the east and north of those mentioned above and others scattered in the Pacific including Samoa, Tonga and Hawaii. Although the kava plant exists throughout these regions, its use as a beverage is most well documented in Fiji, Samoa, Tonga and Vanuatu where it is variously known as kava, kawa, kava-kava, ava and yagona (Lewin, 1931). Map 1 illustrates the Pacific region in which kava has been traditionally used.

The custom of drinking kava has been practised in the Pacific Islands for many centuries. It is an integral part of traditional and contemporary life throughout the Pacific, although regional differences occur in the style of preparation, sanctions surrounding its use and other culturally based factors.

Kava is used in ceremonies, to welcome visitors, at formal gatherings, initiation or completion of work, validation of titles, celebrations of marriages, births and deaths, to cure illnesses and remove curses, and as a means of making contact with the supernatural, in fact in almost all phases of life (Singh, 1983).

Traditional use of kava

The importance of kava in the traditional life of the Melanesians and Polynesians is reported throughout the anthropological literature (Efron et al., 1979; Lewin, 1931). Its cultural status and meaning are explained by many of the historical stories, myths and legends of the people.

These stories also serve to place sanctions on its use. For example, a Samoan myth describes how kava was given to people by the gods. This story presents rules for the correct ceremony, seating arrangements, taking of food and reverence required of children when kava is used. These traditional kava drinking practices are intimately related to indigenous religious practices and village social and political organisation in Samoa (Holmes, 1979a; Brown, 1984).

A similar legend outlines the first appearance of kava in Tonga. This story also emphasizes the important traditional and cultural role of kava in Tongan society (Gatty, 1956).
The way in which kava use is traditionally integrated into the lives of the Pacific Islanders is well illustrated by its use in Tanna, Vanuatu (Gregory et al., 1981). On Tanna, fresh kava is consumed daily at sunset by almost all the adult men. Strict rules govern the places where kava may be consumed, the exclusion of women and children, the quantity of kava consumed, and behaviour following kava consumption - 'kava time'.

The following examples illustrate some of the ways in which kava use is linked to a wide range of Tannese activities and behaviour, both religious and secular.

Sanctions against women drinking kava or even witnessing a kava ceremony contribute to the delineation of male/female roles.

The congregation of men at the nakamal (kava meeting place) at dusk is an important time to meet and exchange news.

Once prepared and drunk the 'kava time' is a time for quiet and solitude. The kava facilitates meditation, problem solving and communication with the gods. In this way kava is said to be 'like a prayer'.

Contemporary use of kava

In recent times, kava use in the Pacific has assumed a wider and more secular role alongside its traditional and ceremonial uses, particularly in urban areas. In many places it is accepted as a social activity in much the same way as drinking tea or coffee in our society. The extent of the social use of kava is illustrated by the following examples (Holmes, 1979a; J Ellis, 1984):

urban centres in Fiji, Samoa and Vanuatu have kava clubs or saloons where kava may be drunk during a work break or as a social activity at the end of the day;

government offices are reported to have kava prepared for their employees each morning; and

the processed powdered form of kava is commercially available in most towns, and is widely used by the local people.

Despite the widespread use of kava throughout Pacific towns and villages, there is surprisingly little reference in any of the available literature to negative effects of kava drinking.
The meaning of kava

Kava has become a symbol of traditional culture and independence in Pacific countries such as Tonga, Samoa and Vanuatu which are struggling to maintain their identity in the face of increasing westernisation (Holmes, 1979a; Gajdusek, 1979). This contemporary meaning associated with kava drinking has several elements. Historically, kava has been associated with a reluctance to become involved in mission or government instigated activities. The missions and colonial governments attempted to prohibit kava use because of its important political and religious role in indigenous society. As a consequence kava drinking boomed. In Tongariki, Vanuatu, for example, kava drinking reached faddish proportions in terms of the number of drinkers and frequency of their use of kava. This anarchical use of the beverage without respect for traditional sanctions has been interpreted as a direct reaction against the power of the missions (Gregory et al., 1981; Gajdusek, 1979). A similar cult emerged on Tanna, Vanuatu. There, a cult leader, Jon Frum, advocated a return to the villages, the use of kava, and other traditional practices which had been outlawed by the missions. The popularity of the Jon Frum cult lead to the rapid widespread use of kava drinking outside of prescribed customs (Gregory et al., 1981; Guiart, 1956).

More recently, kava use has become a wider symbol of Pacific identity. It can be conceived of as being part of the 'Melanesian Renaissance', a term used to refer to the recent encouraging by Pacific nations of their traditional ways of life such as ceremonies, dances and songs, in which kava plays a central role (Keith-Reid, 1984). Kava use is now sanctioned by both churches and governments as an important and worthwhile practice.

HOW KAVA IS USED IN ARNHEM LAND?

The introduction of kava

Kava was introduced to Arnhem Land via the Yirrkala community, near Nhulunbuy, in early 1982. During late 1981 and early 1982, the Uniting Church Aboriginal Advisory and Development Services (AADS) Community Worker at Yirrkala, a Fijian, took a group of leading Yirrkala men to Fiji to observe customary life and village development. These men saw kava being used socially and were also invited to join in village discussions involving the ceremonial use of kava. The Yirrkala men were impressed by the way in which kava was used in Fiji and brought an initial supply back to Australia. They then arranged to obtain supplies of kava so they could use it regularly. During late 1982, the Warruwi (Goulburn Island) AADS Community Worker, also a Fijian, took some Warruwi men to Yirrkala to discuss the organisation of their Homeland Resource Centre. The men were invited to join in discussions over the
drinking of kava. They returned impressed and requested their community worker to arrange supplies of kava for Warruwi (Downing, 1985; Hoyles, 1982). The use of kava has now spread to most other Arnhem Land communities. It should be noted that, although the presence of Fijian and other Pacific Islander community workers facilitated the introduction of kava into Arnhem Land, it was the Aboriginal people themselves who requested and encouraged its use.

There are a number of reasons why kava use has spread so quickly through Arnhem Land:

some Aboriginal and non-Aboriginal people involved with the communities have encouraged the use of kava as a substitute for alcohol;

the kava bowl is seen as an excellent focal point around which discussions can take place. This is particularly relevant as group meetings are an important means of information sharing and decision making in Aboriginal communities and

kava drinking provides an opportunity for fellowship of a type similar to sharing a carton of beer or flagon of wine. This is particularly significant in those communities where alcohol is prohibited, as groups seeking the fellowship associated with alcohol consumption were previously obliged to visit hotels situated some considerable distance from the community (Hoyles, 1982).

Geographic extent of kava use

Kava use in Northern Territory Aboriginal communities is currently confined to Arnhem Land. Its use extends as far west as Minjilang (Croker Island), in the communities across the north coast - Warruwi (Goulburn Island), Maningrida, Milingimbi, Ramingining, Galiwin'ku (Elcho Island), Gapuwiyak (Lake Evella), Nhulunbuy and Yirrkala and, to a limited extent, to the east at Numbulwar and communities on Groote Eylandt. Some of the inland and coastal outstations also receive kava supplies. Map 2 illustrates the Arnhem Land region where kava is currently used.

So far, use of kava does not appear to have extended to Aboriginal communities outside this region in the Northern Territory. It is used, however, by Aboriginal and Pacific Islander groups and others in Darwin.

The supply of kava to Arnhem Land

Commercially produced, powdered kava is legally imported into Australia from Pacific Island countries such as Fiji and
Tonga. Most kava supplies to Arnhem Land follow the same route: supplies are ordered from importers based in Sydney, and the consignments are then sent to Darwin where they are further distributed to the communities by aircraft or barge. Originally, all kava supplies to Arnhem Land were ordered and distributed through the Yirrkala Homeland Resource Centre. Most communities now purchase their own supplies.

Table 1 presents information about the quantities of kava supplied to individual Aboriginal communities during the early part of 1985. This information was obtained from some of the suppliers and air charter companies which carry kava into Darwin and the communities. It does not include all the kava going into the communities as it is known that some is ordered from other suppliers, and smaller quantities are carried privately by individuals. It does give, however, a conservative indication of the amount of kava used in each community.

Table 1

<table>
<thead>
<tr>
<th>Community</th>
<th>Time period</th>
<th>Quantity (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minjilang (Croker Island)</td>
<td>11.1.85 - 27.4.85</td>
<td>140</td>
</tr>
<tr>
<td>Warruwi (Goulburn Island)</td>
<td>9.1.85 - 23.4.85</td>
<td>690</td>
</tr>
<tr>
<td>Maningrida</td>
<td>20.3.85 - 15.5.85</td>
<td>108</td>
</tr>
<tr>
<td>Milingimbi</td>
<td>9.1.85 - 23.4.85</td>
<td>1554</td>
</tr>
<tr>
<td>Ramingining</td>
<td>3.1.85 - 19.4.85</td>
<td>840</td>
</tr>
<tr>
<td>Gapuwiyak (Lake Evella)</td>
<td>3.1.85 - 19.4.85</td>
<td>820</td>
</tr>
<tr>
<td>Galiwin'ku (Elcho Island)</td>
<td>3.1.85 - 19.4.85</td>
<td>865</td>
</tr>
<tr>
<td><strong>Yirrkala</strong></td>
<td>10.4.85 - 8.5.85</td>
<td>1200</td>
</tr>
<tr>
<td><strong>Darwin</strong></td>
<td>6.2.85 - 13.5.85</td>
<td>810</td>
</tr>
</tbody>
</table>

*It is understood that these supplies are further distributed.

It appears that kava is not supplied directly to Groote Eylandt and the outstation settlements. Kava supplies to these areas are purchased from nearby communities. It is certain that some of the very large quantities of kava supplied to Yirrkala are distributed elsewhere.
Current patterns of kava use

The type of kava used in Arnhem Land is the commercially produced, powdered form, from the South Pacific. In the Aboriginal communities, the beverage is prepared by wrapping the powder in a piece of cloth, immersing it in a large bowl or other container filled with water and squeezing it with the hands (plates 5 and 6). The drinkers sit around the bowl and share the beverage from a single cup (plates 7 and 8).

The atmosphere of the kava drinking group varies considerably depending on the people involved. At Yirrkala, for example, the Fijian Community Worker attempts to ensure that at least some traditional procedures are followed when kava is drunk. Here the traditional Fijian tanoa (wooden kava bowl) and coconut shell cups are used. The drinking group adheres to the Fijian clapping ceremony as the kava cup is passed around. Reports from other communities indicate that many kava drinking practices are far removed from any Pacific Island traditions. For example, kava is mixed in any available container such as an old bucket or baby bath, there are no ceremonial procedures and alcohol or pills are sometimes added to the beverage.

Several sources of information provide an indication of the current patterns of kava use in Arnhem Land (Downing, 1985; Hoyles, 1982; Cawte, 1985a and b; pers. obs.). During 1982, kava use was virtually limited to Yirrkala and Warruwi. At this time, kava drinking sessions at Yirrkala commenced at around 3.00pm each day with two or three people and grew to a group of about 20 by midnight. These kava drinking parties were clearly identified by those involved as a means of substituting alcohol with a 'harmless drink' which makes the drinker 'feel good' and which 'promotes fellowship'. The kava drinking pattern which has been established is not the traditional ceremonial experience found in the Pacific but of a nature similar to the social kava drinking prevalent in many Pacific Island towns. Since 1982, kava use in Arnhem Land has accelerated dramatically. In most communities, people of both sexes and various age groups sit together around kava bowls each evening. Recent reports from Department of Health staff, Department of Aboriginal Affairs staff, Uniting Church workers (both Aboriginal and non-Aboriginal) and community residents (both Aboriginal and non-Aboriginal) reveal the following patterns of kava use:

most adult men in the coastal Arnhem Land communities mentioned above drink kava during the evenings. Some women and children also drink kava;

a small group of people in most of these communities drink kava daily, during most of their waking hours, to the exclusion of any other activities;

many business discussions and other meetings are conducted around the kava bowl;
Plate 5: Barayuwa Mununggurr and Alfred Gondarra preparing kava powder for drinking

Plate 6:
Barayuwa Mununggurr preparing kava powder for drinking
Plates 7 and 8: Barayuwa Mununggurr and Alfred Gondarra drinking kava
kava drinking is also a social activity in which family members may participate together, and it has been reported that kava is mixed in much greater strength in Arnhem Land than in Pacific Island countries (Cawte, 1985b). However, as noted above, the strength of the beverage is very difficult to determine owing to factors such as the variety and part of the plant used as well as the degree of dilution.

No information is currently available to quantify the proportion of people using kava in each community, the characteristics of these people or the frequency of their kava use.

A rough estimate of the average daily kava consumption by residents of Aboriginal communities can be determined from the amount of kava supplied to each community and the population of these communities. Table 2 presents the estimated daily per capita consumption of kava in the early part of 1985 for various communities. The average monthly supply of kava to each community was calculated from table 1. From this figure, the daily usage of kava powder was estimated. The number of bowls of the kava beverage that this daily quantity of powder would produce was calculated using the figure of 200 grams of kava powder per large bowl (approximately 10 litres) which is recommended by the suppliers (Fiji Markets, Sydney).

The population figures for each community are taken from the 1981 Census as this is the most accurate, published estimate of Aboriginal populations currently available (Choi and Gray, 1985). The adult population figures include all individuals aged 15 years or older.

It should be noted that these estimates of per capita kava consumption are based on the following assumptions:

that the quantities of kava purchased by individual communities (table 1) are used by these communities alone (for this reason Yirrkala has been excluded from table 2);

that the quantities of kava supplied monthly to the communities (reported as aggregates in table 1) are in fact used monthly. This assumption would appear to be substantiated as most communities consistently order supplies of kava on a monthly basis;

that all people over the age of 15 years use kava. This assumption is not upheld as not all adults in all communities regularly consume kava. Furthermore, some children under 15 years of age sometimes drink kava, and
that kava is prepared as recommended by the suppliers, that is, 200 grams per large bowl or container. There are several problems with this assumption. In each community kava is sold in packets which range from 300 grams to 400 grams in weight. In practice, one packet is usually used to prepare a container of whatever size is available. Sometimes the 'tea-bag' of kava is reused to prepare a second or subsequent bowl, while in other cases, more than one packet may be used in a single bowl. It has been suggested that very strong concentrations are currently prepared in some communities (Cawte, 1985b).

Table 2

<table>
<thead>
<tr>
<th>Community</th>
<th>Average monthly kava supply (kg)</th>
<th>Est. daily kava use (kg)</th>
<th>Est. daily kava use (kg)</th>
<th>Adult population (15+ yrs)</th>
<th>Number adults per bowl per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minjilang</td>
<td>40</td>
<td>1.3</td>
<td>7</td>
<td>99</td>
<td>14</td>
</tr>
<tr>
<td>Warruwi</td>
<td>200</td>
<td>6.7</td>
<td>33</td>
<td>131</td>
<td>4</td>
</tr>
<tr>
<td>Maningrida</td>
<td>54</td>
<td>1.8</td>
<td>9</td>
<td>353</td>
<td>39*</td>
</tr>
<tr>
<td>Milingimbi</td>
<td>445</td>
<td>14.8</td>
<td>74</td>
<td>258</td>
<td>3</td>
</tr>
<tr>
<td>Ramingining</td>
<td>240</td>
<td>8.0</td>
<td>45</td>
<td>105</td>
<td>2</td>
</tr>
<tr>
<td>Gapuwiyak</td>
<td>235</td>
<td>7.8</td>
<td>39</td>
<td>290</td>
<td>7</td>
</tr>
<tr>
<td>Galiwin'ku</td>
<td>250</td>
<td>8.3</td>
<td>41</td>
<td>634</td>
<td>15</td>
</tr>
</tbody>
</table>

*Kava supplies to Maningrida began during March 1985.

Table 2 shows that, based on the estimates used, an average of two to 15 adults would share one bowl of kava each day. This quantity would represent an average of up to half a bowl of kava per person (or the equivalent if a stronger concentration is prepared). These estimates are almost certainly an underestimate of the actual quantity consumed by regular drinkers, as the quantity of kava supplies presented in table 1 are incomplete, and not all the adults in the communities consume kava. The estimates do, however, provide a base level from which to gauge the amount of kava which may be consumed by occasional drinkers and regular drinkers in each community.
The total cost for communities to purchase powdered kava from Sydney suppliers is approximately $30 per kilogram. Some suppliers charge a lower rate for the kava and also charge air freight costs, while others charge at an all-inclusive rate. In most communities, kava is resold in packets of approximately 300 to 400 grams, for $15 per packet. The retail price of a kilogram of kava is then, approximately $45.

Table 3 presents the estimated monthly wholesale and retail costs of kava for various communities. These estimates are based on the supplies presented in table 1. As table 1 underestimates total supplies to the communities the costs presented in table 3 also underestimate actual costs.

<table>
<thead>
<tr>
<th>Community</th>
<th>Estimated wholesale cost (per month)</th>
<th>Estimated retail value (per month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Minjilang</td>
<td>520</td>
<td>1,200</td>
</tr>
<tr>
<td>Warruwi</td>
<td>6,000</td>
<td>9,000</td>
</tr>
<tr>
<td>*Maningrida</td>
<td>408</td>
<td>1,620</td>
</tr>
<tr>
<td>Milingimbi</td>
<td>13,350</td>
<td>20,025</td>
</tr>
<tr>
<td>Ramingining</td>
<td>7,200</td>
<td>10,800</td>
</tr>
<tr>
<td>Gapuwiyak</td>
<td>7,050</td>
<td>10,575</td>
</tr>
<tr>
<td>Galiwin'ku</td>
<td>7,500</td>
<td>11,250</td>
</tr>
</tbody>
</table>

*The supplier to these communities charges at a lower rate.

Actual retail prices vary from $10 to $30 per packet depending on the seller, the community and the demand. The cost to some outstations is considerably higher owing to additional freight charges.

In several communities, the only supplier of kava is the Homeland Resource Centre. In these cases, profits from kava sales are used to fund outstations and other community projects. At Yirrka, for example, profits have enabled the Resource Centre to purchase a Toyota truck used to service the growing number of outstations (R Ellis, 1984). Reports from some other communities, however, suggest that the kava sales business has become an enterprise of single individuals.
THE IMPACT OF KAVA IN ARNHEM LAND

The current use of kava in Arnhem Land is a controversial issue. Some people associated with the Arnhem Land communities support and encourage kava use while others are opposed to it. This section summarises both the positive and negative impacts that kava use has had in Arnhem Land Aboriginal communities.

Positive impacts of kava

It appears that, in many cases, kava is being used as a substitute for alcohol. This is reported to be occurring both in communities where alcohol is available and in 'dry' communities where those wishing to drink alcohol must do so outside the community boundaries. The following reports and observations illustrate this point:

- many previously heavy alcohol drinkers are now frequently involved in kava parties. During this time, at least, they are not consuming alcohol (Hoyles, 1982; Downing, 1985);
- there are individual reports of heavy alcohol drinkers switching completely to kava (Hoyles, 1982; Downing, 1985; Cawte, 1985b);
- the air charter companies which carry people from 'dry' communities into towns (often for the sole purpose of obtaining alcohol), report that they have had fewer customers since kava has been available in the communities;
- Aboriginal women in some communities report that the men now stay home instead of visiting the towns to drink (pers. obs.), and
- reports from several sources indicate that alcohol sales to Aboriginal people in Nhulunbuy have declined since kava has been available.

The soporific effects following heavy kava intake are far preferable to the aggressiveness associated with excessive alcohol use. Residents of the Yirrkala community report that vandalism and violence have decreased since kava use became widespread.

Several reports indicate that gambling and petrol sniffing, as well as alcohol use, have reduced since kava use became prevalent (Downing, 1985; Cawte, 1985b).

Many people report that kava drinking fits well into the Aboriginal way of life. It is a group activity which is easily integrated into traditional ceremonies. It also facilitates
group social activities such as singing, storytelling and other meetings.

The fellowship of the kava drinking group facilitates both formal discussions and social activities. On these occasions much good communication takes place, without the disruptive effects associated with alcohol use.

Kava drinking groups encourage all family and community members to get together. This is in contrast to alcohol drinking groups in which the sexes are often separated.

In some communities, profits from kava resale are being used for community and outstation projects (Downing, 1985; R Ellis, 1984).

Negative impacts of kava

The negative impacts of kava use are of three main kinds: social, health and economic.

Social problems

A major concern is that people are spending large amounts of time drinking kava, to the exclusion of responsibilities such as employment, family and church. A frequent complaint from employers is that people who have been up drinking kava until late at night are too tired to attend work the next day. This absenteeism is likely to be as much a consequence of lack of sleep as of the physiological effects of kava use.

Another frequent complaint from health workers is that parents who spend their time drinking kava often fail to care adequately for their children. Again, this problem is not associated with kava as such, but with the social impacts of its use.

Health problems

The physiological effects of kava use are outlined above. No evidence exists to suggest that small quantities of kava prepared from powder of the type used by the Arnhem Land communities is likely to have any long-term physical effects on individual consumers. There is widespread concern, however, that large quantities of kava are being consumed by some individuals in these communities. It has been suggested that when large quantities of kava are consumed, the pharmacological effects may be quite different from those described in the kava literature. To date, no scientific investigations of the health consequences of heavy consumption of the kava beverage by humans, have been undertaken.
Northern Territory Health Department staff have been monitoring health problems in Aboriginal communities which may be a consequence of heavy kava use. No adequately diagnosed health problems have been definitely attributed to kava consumption. Several reports have indicated that dry, scaly skin, skin discolouration and allergic reactions (facial puffiness) are probably kava caused, however, the numbers involved are a small proportion of the total kava drinking population.

The frequent lack of adequate hygiene during the preparation and drinking of kava is a major health concern. Kava preparation involves wrapping the powder in a cloth which is then squeezed by the hands while immersed in a large container of water. A communal cup is then used to share the beverage among drinkers. There is concern that the infectious diseases prevalent in Arnhem Land communities may be spread by these procedures.

Reports have been received that kava is sometimes being mixed with alcohol and other drugs. It is well known that consuming combinations of drugs can cause serious health problems. The chemical interactions between kava and alcohol or other drugs have not, as yet, been investigated.

Economic problems

It is said that kava drinking is an expensive activity which uses money that would otherwise be spent on food, clothing and other necessary items. The actual financial costs of kava use in various Aboriginal communities may be investigated at two levels: costs to the individual consumer, and costs to the community.

Costs to individual consumers

It costs, on average, $15 to prepare one bowl of kava of approximately 10 litres. The kava used in this preparation may sometimes be reused to prepare a smaller quantity of the beverage (say five litres).

For the same price one can purchase approximately two dozen 375 ml cans of beer or four two-litre flagons of wine.

These estimates, while very rough, indicate that the costs of drinking similar quantities of kava, beer and flagon wine are similar. It is likely, however, that kava is consumed in greater quantities than alcoholic beverages by individual consumers owing to its milder effects.

It is not meaningful to calculate the weekly or monthly costs of kava to individual consumers, owing to the sharing nature of Aboriginal communities and the way that kava is consumed as a group activity.
Costs to communities

Table 3 shows that most communities are spending at least $6,000 per month on kava supplies. However, as a large proportion of the profit on kava sales is usually retained by the community, only part of this amount is lost to the local economy. The impact of this level of expenditure on kava supplies can only be interpreted within the total economy of each community.

INTERPRETATIONS OF KAVA USE IN ARNHEM LAND

The current use of kava in Northern Australia is different from kava use throughout the Pacific Islands. Arnhem Land is one of the few places where kava has been introduced recently, and where the practice does not have any traditional cultural basis.

Numerous theoretical models have been proposed to explain drug taking behaviours in various societies. Some of these theories can be used to interpret the current widespread use of kava in Arnhem Land Aboriginal communities. These models are not mutually exclusive, but enable one to view the behaviour from different perspectives.

Addiction model

The addiction model focuses on the behaviour of individuals, rather than social groups. The model proposes that individuals use kava regularly because the practice is dependence forming, either in the physical or psychological sense. An extension of this theory suggests that many people have a psychological need to use drugs of various types. In this way, kava may serve the same functions as alcohol, coffee and other drugs even though its physical effects are different.

Social deviance model

Social deviance models state that behaviours which violate social norms are deviant and therefore should be regulated by social control measures such as legislation. Kava drinking in Aboriginal communities has been viewed as deviant by some people, because it does not conform to their expectations of socially correct behaviour. For example, spending large amounts of time drinking kava is considered to be socially irresponsible because it results in neglect of family, work and church responsibilities.

It is important to note that Australian Aboriginal societies have no traditional, culturally established norms or other social controls to regulate kava drinking. Thus it is
not surprising that the practice is widespread and often uncontrolled. Recently, social control was attempted in one Arnhem Land community when a temporary ban by the Council prohibited kava supplies reaching the community for a short period of time.

Resources model

The resources model states that the level and patterns of drug-taking in a society are a function of the resources available to individuals or to the social group. Such resources include money, time and energy. In most Aboriginal communities, time is a resource in abundance. In many cases, kava drinking appears to be simply a pleasant way to spend time which is less harmful than alternatives such as drinking alcohol, gambling or petrol sniffing.

Cultural and social change model

Cultural and social change models propose that certain behaviours become prevalent because they have a social meaning or cultural identity for a particular social group. Such behaviours are frequently observed in societies where social upheaval or cultural change is occurring.

Kava drinking has become a symbol of traditional culture and independence from westernisation in many Pacific countries as noted above. The practice may currently be assuming a similar meaning in Arnhem Land.

Kava was first used in Arnhem Land communities which employed community workers from Pacific countries, and was distributed from the Homeland Resource Centres. The aim of these Centres is to encourage and facilitate the migration of Aboriginal people from communities established by the Missions to tribal lands (outstations) where they live in autonomy under tribal law. The outstation movement has many similarities to recent moves by Pacific countries to encourage traditional culture, local rule and independence from westernisation.

In this context, kava use in Arnhem Land may have taken on some aspects of its social meaning in the Pacific. Although kava has only recently appeared in Arnhem Land and has little traditional cultural identity for Aboriginal people, it is still a symbol of indigenous customs and is reported to be easily assimilated into Aboriginal ceremonies.
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