

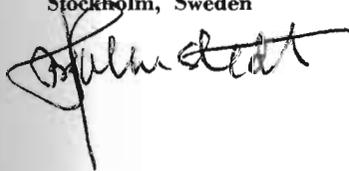
# Ethnopharmacologic Search for PSYCHOACTIVE DRUGS

Proceedings of a Symposium held in San Francisco, California  
January 28-30, 1967

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1967

Sponsored by:

Pharmacology Section, Psychopharmacology Research Branch  
National Institute of Mental Health    Public Health Service  
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

# Recent Observations on the Use of Kava in the New Hebrides

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Of all the Pacific islands on which kava is still used today, Tongariki is the one on which its use has attained maximum frequency and intensity. I have had occasion to be resident, with Professors Jean Guiart and Robert Kirk, on this small island of the Sandwich group in the New Hebrides, for several weeks in two periods during the past three years, while working on an intensive study of human adaptability in isolated populations. Quite apart from our medical and genetic studies, we were soon aware that the entire social life, mood and spirit of the island villages changed nightly at dusk to a more subdued, whispering and cautious quiet than we had seen in native villages elsewhere in the Pacific. This restrained atmosphere we found to be caused by kava drinking: nightly, most of the men were drinking fresh kava.

Whereas on most Pacific islands kava prepared by the ancient technique of premastication (particularly of the fresh, undried root) has been abandoned in favor of a much less pharmacologically potent beverage made by grating or pounding the root, usually dried, here on Tongariki the current extensive nonceremonial drinking of kava makes use of the "green", freshly harvested, locally-grown root and of mastication and salivary digestion of the pulp by the adolescent and young men. Fresh cold water is used with hand mixing and wringing through a sieve of cocoanut fiber to extract the active ingredients from the chewed pulp. The many variations of this procedure have been described exhaustively since the earliest reports from Captain Cook's voyages, and similarities in minute details of the kava ceremony have been used to suggest affinities between peoples on different islands. On Tongariki the procedures are now relatively unformalized and thus subject to considerable variation. Kava drinking on this island is unusual, furthermore, in that its extent and pattern is a relatively recent phenomenon, and in that it has reached faddish proportions in terms of the number of kava drinkers and the frequency of their use of kava, which in both cases exceeds that of pre-European contact.

This resurgence of kava drinking suggests the extensive revival of kava usage on the southern New Hebridean island of Tanna in the early 1940's as a ritual of a flourishing cargo cult which repudiated much of the missionary teaching. Jean Guiart, in his study of this cargo cult, believed that the fierce battle the Presbyterian Church had waged against kava drinking had focused undue attention onto the traditional use of the beverage; this served to endow its new prohibition-defying use with such psychological import that the renewal of kava drinking became an important part of this anti-missionary

movement, which appeared on the island during World War II and has not yet subsided. Early in the cargo movement (called the John Frum movement after a neomythical man of that name) there was an anarchical use of the drink, without respect for the ancient ceremonial and age-group restrictions on its use; even adolescents drank it; the drinking took place in small informal groups at odd times of the day and in unappointed places, as was never permitted in pagan times.

Tongariki has a population of about 500 living in four small villages; it has not had a full-blown cargo cult or Messianic movement, but the resurgence of the use of kava has been associated with a reluctance to become involved in Protestant mission or government-instigated activities, an increased clannishness, and a withdrawal from outside contacts. No European missionary has ever been resident on Tongariki, but native missionaries from other islands have been sent there by the Presbyterian Church. In spite of attempts to suppress it, the use of kava here was never fully stopped; in recent years most adult male members of the population turn each night to kava. Moreover, only the fresh root and not the dry variety is usually employed. The users still attend Sunday church services on the island, and do not associate their use of kava with a revolt against the church such as occurred on Tanna.

Kava drinking on Tongariki is a relatively relaxed and unceremonious affair, without the strict adherence to prescribed etiquette characteristic of kava drinking in much of the Pacific. It is prepared entirely by chewing, never by the use of mortars, graters, or other mechanical aids. Boys from pre-adolescent age to young adulthood usually do the chewing for their kinsmen or guests, or out of courtesy for others. Older youths or young men mix, wash, and wring the kava from the chewed pulp. Girls and women may occasionally participate in the chewing, whereas this was not so in the past. Adolescents and, more rarely, women may drink kava without censure. It is drunk in various places within the village proper, usually in a quiet house, and strict exclusion of children and women from the proximity and view of the proceedings has lapsed. Thus, the current kava drinking on Tongariki is more like that of the early John Frum movement on Tanna in its lack of formality and restraints. On Tanna, however, by the 1950's kava usage had returned essentially to the old traditional ceremonially controlled forms.

Usually, half of a coconut shell or a bowl of the same capacity is used to prepare the kava and the full contents—about 100 ml.—drunk slowly in one draught. Sometimes twice this quantity is drunk. A kava drinker usually eats immediately after taking the kava; the kava is prepared while the evening meal is being cooked. The effects come on in a half hour or less, and the drinking is thus usually postponed until food is ready. Those who have drunk the kava find a comfortable place to sit, often beside a dying fire in the dark house, where they remain hunched over and avoiding light and sound disturbances of all sorts. Conversation ceases, and slowly they fall into a kava-induced stupor, which is not true sleep. This stage occurs about an hour after drinking. From it they can be aroused by being addressed or gently shaken, but this ruins the effect they are seeking from the kava. A

few hours after they have drunk kava they arise and walk to their own houses to fall asleep promptly again; others remain where they have first "fallen". In early morning they appear fresh and without any "hangover"-like sequelae. Those whom we have seen walking a few hours after the drinking are usually somewhat ataxic, photophobic, and slowed in their reactions. A few who have had a higher dose are extremely ataxic and could return to their homes only with assistance from the children or myself. There is no belligerency or irritability—only a quiet and friendly somnolence associated with the weakness of the lower limbs and the accompanying ataxia.

The drinkers reply rationally and are well oriented in time, place, and person; they respond intelligently, even sometimes quickly, to complex questions. Bright or moving lights, noise or other sound, touch, and even the subdued bustle of nearby activity annoy them, and the villagers of all ages have extreme respect for this. In discussions the kava users refer to a heaviness and weakness of their extremities, particularly of the feet and legs, and to an earlier paresthesia ascending from their feet to their trunk and described with such words as "numbness", "tingling", and "coldness". They demonstrate a tactful avoidance of the disturbance my questioning produces, a very subdued annoyance at my "breaking" their kava. I have taken pulse rates and blood pressure measurements on a number of kava drinkers at varying intervals from one to three hours after drinking and found no significant change in either from that observed on the same subjects during examinations in the daytime, when they had had no kava for the preceding eighteen hours or more. Respiration is shallow and regular; deep tendon reflexes remain intact.

Of interest to us in our genetic studies has been the effects that kava might have on fertility, since it is quite evident that kava drinkers rarely engage in sexual activity on the nights when they drink. Interviews with the women substantiate this. There is no dearth of children on Tongariki, but the population is not increasing explosively as it is in some parts of the Pacific, and kava drinking may serve as an interesting means of birth control for the small island, which could be easily over-populated.

Dam-Bakker, DeGroot and Luyken have suspected the use of *wati*, as kava is called in southwest New Guinea, as a possible cause of the infertility in the Marind-Anim people. Their studies on chronic kava administration to rats, however, failed to demonstrate any impaired fertility, but they admit that they hardly reproduced essential features of kava use in the human community in their rat experiments.

Jean Guiart and I have occasionally taken kava with the natives, and have noticed subjectively little difference in the sequence of symptoms and reactions from those reported by many Pacific voyagers since Captain Cook's days. A few peculiar paresthesiae of the face, legs and arms—especially of the legs—a slight feeling of numbness, tingling, coldness and then weakness, accompanied early by shorter flashes of warmth or flush, occurred during the first half hour after ingestion. We have boorishly "broken" our kava at times, and walked off to engage in other activities without noticeable impairment of motor or sensory function. This has been after rather low

doses. There is, with higher doses, a pleasant, relaxing, paresthesia-enjoying, refreshing state of somnolence without mental dulling which eventually leads to sleep. At times, members of our team have taken large doses—a large coconut shell full—and real weakness, even a paresis making walking impossible, has been present for several hours after ingestion. Such an overdose left one of us slightly ataxic with a persistent feeling of weakness in the lower limbs on into the next morning.

Several recent accounts report little or no pharmacological action from kava prepared from grated or pounded dried kava root and used socially or ceremonially on Fiji and Samoa. My own experience in drinking such kava in Fijian villages is the same lack of effect. It is this dried kava root that has entered commerce, particularly on Fiji, and I wonder whether it is not this product that has been used in the pharmacological and chemical laboratories. The freshly harvested root, prepared by chewing, appears to result in the more potent preparation, the effects of which I have described. The stronger physiological actions of the kava used on Tongariki and Tanna may well be from the use of freshly harvested root rather than dried root, but there is also the possibility that the chewing and salivary digestion that is used to break up the fibers and emulsify the ingredients may be responsible for the pharmacologically more potent product. It is also likely that a higher dose of active ingredients is taken on Tongariki, since a considerably more concentrated extract appears to be prepared; far more root is used per individual drinker than on Fiji or Samoa.

#### APPENDIX

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