Olsemwanem kastom blong tring kava i save afektem tingting blong man mo wei we man i draev

Traditional kava-drinking, cognition and driver fitness

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Kava, we oli singautem tu se 'plant blong ol god', hemi gro plante long ol tropikol aelan blong Pacific. Ol man oli yusum kava olsem lokol meresin. Mo tu, oli kranem rus blong hem, afta strenem long wota blong oli save tring blong mekem oli fil rilaks. Long saed blong kastom, kava i kat impotent mining, be naoia we man i stap tring tumas kava, i kat wari i kamaot from ifekt blong hem long saed blong seifti taem man i draev. Dokta 'Apo' Aporosa, we hemi stap karem aut risej long Waikato University long Aotearoa New Zealand, hemi bin stadi wei we kava i afektem tingting blong man taem man i draev.

Dokta 'Apo' Aporosa i mekem stadi long impakt blong kava long tingting blong man taem man i draev.

Abstract
Kava, or 'the plant of the gods', grows widely across tropical Moananuiākea (the Pacific). Used in traditional medicine, its roots are also pounded and strained through water to make a drink with relaxant effects. Kava has deep cultural significance, but because it is drunk in large quantities over several hours, concerns have been raised about its effects on driver safety. Dr 'Apo' Aporosa, a Research Fellow at the University of Waikato in New Zealand, has studied the impact of traditional kava use on cognition and its implications for driver fitness. The findings of that research is presented here.

Kava hemi wan tropikol plant. Johann Forster we i bin kamaot long Pacific wetem Kapten Cook long 1770s, hemi putum saentifik nem ia *Piper methysticum* long kava. Mining blong nem ia hemi 'pepa plant we i mekem man i drong'. Ol speselist blong kava tedei oli talem strong se Forster hemi rong blong putum nem ia long kava from se nem ia i min se kava hemi olsem alkol, mo hemi save mekem man i drong. Hemia i no tru, from se ol ifekt blong kava oli difren long ol ifekt blong alkol mo ol narafala drugs olsem *cannabis*. Ol speselist oli faenem aut se kemikol strakja blong kava i mo fasfas tan olsem we ol man i bin bilivim bifo.

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Photographer: Jonathan Baker.

Aporosa we i stap karem aut risej long Waikato University long Aotearoa New Zealand, hemi kat bitim 20 yia ekspiriens olsem wan konsaltent, skul tija, man blong planem kava mo riseja long aelan blong mama blong hem – Fiji. Hemi luk save se i kat wan bigfala difrens long saed blong kava yus long wan lokol wei, mo kava tablet we oli yusum long saed blong sapotem helt blong man.

Nem blong ol kemikol we oli kosem ifekt blong kava hemi '*kavalactones*'. Ol *kavalactones* ia oli wok long brein mo ol *nerves* (ol samting long bodi we oli helpem yumi blong save filim ol samting olsem hot, kol mo pein) blong man. Ifekt blong ol kavalactones kolosap i semak long Benzodiazepine, we hemi wan meresin blong daonem wari mo stres. From semak ifekt ia nao ol famasi ol mekem kava i kam *tablet* meresin blong tritim sik ia *anxiety*, we yumi save talem se bigfala wari. Be plante kantri long Europe oli fraet mo oli no trastem se kava *tablet* i seif, mekem se oli banem yus blong kava *tablet*. Ban long kava *tablet* ia i mekem se man i no tingting hevi mo oli tingting nogud long lokol mo kastom wei blong tring kava.

World Health Organization (*WHO*) i bin putum aot tu kwaliti kontrol mo seifti ripot blong talemaut se kava hemi lo-level-risk mo hemi seif sipos man i yusum long lokol wei blong tring – hemia blong miksim wetem wota. Nating hemia, i kat bigfala wari i stil stap long saed blong ifekt blong kava long wei we man i draev. Long sam kantri long Pacific, polis i ripotem se mo i ko, mo oli stap stopem plante draeva we oli faenem se oli drong smol. Be taem oli testem olketa wetem alkol bret test (*alcohol breath screening tests*) oli kat negativ risalt. Ol polis oli saspekt se fasin blong tring kava i mekem se ol draeva ya oli drong smol.

Problem ya nao i mekem se Aporosa i stadi ifekt blong kava long man we i tring plante sel mo draev. Fasin blong tring plante kava hemi nomol wetem ol lokol man long ol aelan blong Pacific. Naoia ol man Pacific ovasi mo ol narafala man we oli laikem kava, oli mekem semak tu. Long risej blong hem, Aporosa i wantem faenem aot olsemwanem kava i afektem tingting blong man, hao brein blong man i wok taem hemi tring kava, mo hao kava i afektem wei we man i

draev. Blong mekem ol test blong brein ya, hemi yusum ol test we oli disaenem long Europe. Be taem hemi yusum ol test ia, hemi separetem ol difrens we i stap bitwin wei we ol waetman oli tingting, mo wei we ol man Pacific oli tingting.

Traditional preparation of kava from dried powdered kava root and basal stumps. Photographer: Todd M. Henry.
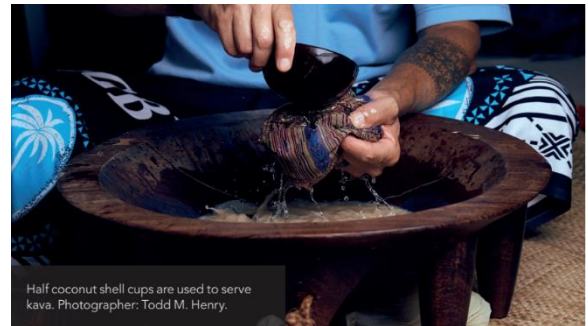
Half coconut shell cups are used to serve kava. Photographer: Todd M. Henry.

Wei we oli karemaot stadi ia (Methodology)

Aporosa i kolektem ol tingting blong man mo data blong brein-test tru long lokol fasin blong storian mo tring kava – long Fiji oli singautem se faikava. Ol patisipen blong faikava ia oli staon long mat long flo, oli krosem leg, mo oli tring kava mo storian blong siks awa. Hemia stael blong tring kava long Fiji.

Oli yusum drae paoda blong kava blong Fiji. Oli priperem kava ia long wan tanoa (tradisenel dis blong kava) mo sevem long ol bilo (haf sel kokonas). I kat 100mls (0.2 pint) long wan haf sel. Oli tring siks sel long wan awa.

I bin kat 39 patisipen evriwan we oli tek pat long test ia. Oli spletem olketa long tu grup. Wan grup i kat 20 patisipen we oli tring kava mo narafala grup hemi kontrol grup we i kat 19 patisipen. Ol patisipen ia oli miks - oli blong Pacific mo ol narafala kantri. Evri patisipen oli ol man nomo from se olketa nao oli stap draev afta we oli tring tumas kava. Ol patisipen oli kat abaut 34 yia. Olketa we oli tek pat long test ia, oli no tring alkol, *caffeine* (olsem we i stap long kofi) mo kava bifo we oli kam long faikava ia.

Olsem kastom blong Pacific, faikava ia i stat mo i en wetem ol tradisenel fasin blong rispekt. Long test ia, wanwan long ol 20 patisipen i bin tring 3.6 litres (7.6 pints) blong kava. Oli yusum ol frut mo ol nat blong wasem maut.

Pre-mixed kava is poured into a *kumete* during data collection. Photographer: Todd M. Henry.

Long faikava ia, Aporosa i bin yusum wan ikwipmen we nem blong hem *Brain Gauge* blong testem tingting blong man mo hao brein blong man i wok. Ikwipmen ia i olsem wan *computer mouse*, we hemi analaisem ol mesej bitwin tip blong finga blong man mo brein blong hem. Ol siks poen we *Brain Gauge* ia i meserem hemi: *Speed and Fatigue* – hao kwik man i save riakt, o sipos hemi taed; *Accuracy* - sipos brein i save talem stret samting, mo i save talem stret ol difren filing we man i kat; *Temporal Order Judgement* - hao brein i save talem stret oda we samting i bin hapen; *Time Perception* - sipos brein i save talem stret taem we samting i hapen; *Plasticity and Fatigue* - sipos brein i save riakt mo adapt taem i kat eni jeinj, o sipos man i taed; mo las wan hemi *Focus and Concentration* – sipos brein i save fokas gud. Oli mekem ol test ia tri taem long wanwan patisipen: bifo faikava i stat, afta tri awa, mo long en blong siks awa we oli stap tring kava.

Ol risalt (Results)

Afta long test ia, oli komperem data blong ol man we oli tring kava wetem data blong kontrol grup we oli no tring kava. Risalt i soem se olketa we oli tring kava oli kat negativ jeinj long wan nomo long ol siks poen we *Brain Gauge* hemi bin testem - hemia *Temporal Order Judgement*: hao brein i save talem stret oda we samting i bin hapen.

Data we *Brain Gauge* i kolektem i soem se i nokat eni negativ ifekt long ol narafala faev poen blong *Speed and Fatigue* - hao kwik man i save riakt, o sipos hemi taed; *Accuracy* - sipos brein i save talem stret samting, mo i save talem stret ol difren filing we man i kat; *Time Perception* - sipos brein i save talem stret taem we samting i hapen; *Plasticity and Fatigue* - sipos brein i save riakt mo adapt taem i kat eni jeinj, o sipos man i taed; mo *Focus and Concentration* - sipos brein i save fokas gud. Be test ia i soem wan hae negativ risalt long *Temporal Order Judgement* - hao brein i save talem stret oda we samting i bin hapen. Yumi save talem se afta siks awa blong tring kava, negativ impakt we kava i kat long abiliti blong man blong save putum samting we i bin hapen long wan stret mo raet oda, hemi hae tumas. Hemia i afektem

wei we brein blong man i wok. I min se man i no save mekem disisen, i no save prosesem infomesen, memori blong hem i nogud, i no save tingting klia mo hemi no save kontrolem hemwan. Ol fasin i mekem se man i no save draev seif.

Photo credit: www.corticalmetrics.com

Antap long *Brain Gauge* mesemen ia, risej tim oli raetem daon ol aksen blong ol patisipen. Oli luk se afta fo awa, muvmen blong ol patisipen we oli stap tring kava i slo daon, mo oli no save pronansem gud ol toktok.

Oli luk tu sam jenis long saed blong fokas. Mo taem i ko, oli luk se olketa long kontrol grup we oli no tring kava, oli stat blong lusum fokas long ol test ia. Olketa we oli tring kava oli mo rilaks long stat blong test, be wetem taem i pas, oli fokas mo oli konsentreit mo gud long ol test ia tan olketa long kontrol grup. Sko blong *Brain Gauge* test tu i soem se fokas blong olketa we oli tring kava i kam mo gud.

Mining blong ol risalt ia (Implications)

Ol risalt blong test ia i talem se taem man i tring kava, kava i afektem *Temporal Order Judgement* – hemia i minim se brein blong hem i no save talem stret oda we samting i bin hapen. Ifekt ia i difren long ifekt blong ol narafala drag. Aporosa i talem se: 'Stadi ia i soem klia se taem man i tring kava blong longtaem, mo i tring long lokol wei, ifekt blong kava i spesel – hemi no strong. I minim se ifekt blong kava long tingting blong man i no strong olsem alkol; i no strong olsem *cannabis*, *hallucinogen* we hemi mekem man i drim o luk samting we i no stap; mo i no strong olsem *narcotics* we i save namem filing blong man mo mekem man i save silip.

Be hemia i no min se kava i no afektem abiliti blong man taem hemi draev. Stadi ia i bringim ap tu impotent poen: wan se man we i tring kava kasem siks awa, bai hemi luk se fokas blong hem i impruv smol. Hemia i save mekem man i wekap i stap mo i save impruvum ability blong hem blong draev seif. Be long sem taem data we i kamaot long test ia i soem tu se long siks awa blong tring kava, kava i afektem brein blong man long wan bigfala wei – tingting blong man i no klia long oda we samting i hapen. Hemia i save spolem klia tingting long saed blong mekem wan

disisen, mo i save kosem problem long saed blong draev.

Aporosa i bin diskasem tufala difren risalt blong test ia wetem ol speselist long saed blong brein risej, be olketa speselist ia oli no save eksplenem risalt blong test ia. Oli save talem nomo se ifekt long brein blong man we i tring kava long wan lokol wei, hemi wan niufala samting we yumi stil traem blong andastandem. Oli talem tu se brein i wok long wan wei we i fasfas lelpet blong andastandem. Ol toktok blong ol speselist ia i min se yumi nidim plante mo risej blong helpem yumi blong andastanem olsemwanem nao kava i save impruvum fokas blong man, be long sem taem, i save spolem abiliti blong man blong mekem stret mo klia disisen.

Stadi blong Aporosa ia i konfemem risalt blong risej blong hem fastaem finis, we hemi talem se ifekt blong kava i difren long alkol mo ol narafala drag. Hemi eksplen se: 'Yes, kava i save afektem *Temporal Order Judgement* we hemi ability blong man blong mekem stret mo klia disisen, be hemi no afektem brein blong man olsem alkol mo cannabis. Risalt blong test ia i soem tu se kava i no save mekem man i drong, i no save mekem man i luk samting we i no stap, mo i no save namem man blong i silip.' Hemi talem se 'Fasin blong talem se kava "i mekem man i drong" hemi no tru mo hemi krietem wan rong tingting long kava.'

Serving kava at nakamal, Port Vila, Vanuatu. Photographer: Todd M. Henry.

Nid blong mo risej (More research needed)
Plante risej we man i stap mekem long saed blong ifekt blong kava long brein blong man, oli stap yusum kava tablet. Aporosa i talem strong se 'i kat bigfala difrens bitwin kava *tablet* mo kava we yumi yusum long ol lokol wei olsem long faikava.' Yumi nidim mo risej long kava we yumi yusum long lokol wei, mo long ol difren kantri blong Pacific olsem Vanuatu, Solomon, Pohnpei, mo PNG.

Ol risalt blong ol test ia we Aporosa i mekem, oli ol niu mo impotent infomesen we i kam antap. Oli soem se nomata ifekt blong kava i difren long alkol mo ol narafala drag olsem *cannabis*, taem yumi yusum kava long ol lokol fasin blong yumi, hemi afektem *Temporal Order Judgement* blong man mo

abiliti blong hem blong mekem klia, gud, mo stret disisen. Samting ia i save impaktem wei we yumi draev, mo kosem aksiden.

Aporosa i eksplen se: 'Kava hemi wan impotent pat long kastom mo aidentiti blong yumi, mo hemi konektem yumi evriwan. Taem risej long kava i soem se kava i kat ol negativ ifekt blong hem olsem long saed blong draev, hemi save mekem sam man i herem nogud from. Be long sem taem, yumi mas tingbaot se rispekt hemi stamba blong fasin blong yumi; so sipos yumi draev afta we yumi tring kava, yumi mas save se aksen blong yumi i save putum laef blong narafala man long bigfala denja. Yumi mas tingting gud long saed ia mo jenjim fasin blong yumi.'

Olsem pat blong risej blong hem, Aporosa i putum aot wan liflet we oli raetem long lanwis blong Samoa abaut rispekt long kastom blong Samoa. Toktok long liflet ia i blong talem save long ol man we oli ko tring kava long ol faikava abaut rispekt, mo i konektem fasin blong rispekt wetem ol risk blong draev afta we man i tring tumas kava.

Aporosa i talem se wanem yumi nidim naoia, hemi mo risej blong save andastandem olsem wanem nao kava i afektem bodi mo brein blong man we i tring plante kava long lokol wei. Hemi se: 'Stadi ia i produsem sam niu infomesen long saed blong kava. Long sem taem i soem se yumi stil no save hao kava i save afektem sam eria blong brein, be no ol narafala eria.' Long las toktok blong hem, Aporosa i talem se: 'Yumi save karem infomesen long ifekt blong kava taem yumi testem man we i tring kava long driving simulator - wan eksperimen we man i draevem wan kiaman trak. Be yumi no save gohed wetem risej long eria blong hao kava i afektem brein blong man, from we ol speselist oli nokat naf save mo infomesen yet long saed ia.'

Ol man i kwestenem Aporosa (Aporosa was asked):
Wanem nao tingting blong ol man we oli tring kava, long liflet blong yu ia we yu tokbaut ol risk blong draev afta we man i tring kava?

I kat ol difren tingting. Sam man oli ting gud mo oli ting hevi long risej blong mi, be i kat sam we oli kritisaesem liflet mo risej blong mi. Olketa we oli komplen oli talem se taem yumi komperem ifekt blong alkol wetem blong kava, ol ifekt blong kava i smol tumas - mekem se oli fil seif blong draev. Sam narafala man oli talem se ol risalt blong risej ia oli save mekem se bai i kat ol strikt kontrol long yus blong kava we i save impaktem ol kastom praktis blong yumi. Mo tu, i save mekem man i ko bak blong tring alkol mo fesem ol sosiel impakt blong alkol, we kava i nokat. Sam man i fil se taem risej i talem se kava i save kat negativ ifekt, hemia i olsem wan kritisisem long kastom mo ol lokol praktis blong yumi. Olsem we mi bin talem finis, topik blong kava hemi sensitiv mo

hemi save bringim ap gud mo nogud filing. Olsem man Fiji mo man Samoa we mifala i tring kava, mifala i andastand se infomesen ia i save bringim aot miks filing.

Ol narafala risej we i sapotem risej ia (Bibliography)

Aporosa, S.A. (2019). Kava and ethno-cultural identity in Oceania. In S. Ratuva (Ed.), *The Palgrave handbook of ethnicity*. (pp. Ch. 98. pp.1923-1937). London: Springer-Nature. doi.10.1007/978-981-13-0242-8_134-1

Aporosa, S.A., Atkins, M., & Brunton, R. (2020). Kava drinking in traditional settings: Towards understanding effects on cognitive function. *Journal of Human Psychopharmacology: Clinical and Experimental*, 35(2), e2725. doi.10.1002/hup.2725

Aporosa, S.A., Atkins, M., & Leov, J. (2021). Decolonising quantitative methods within a Pacific research space to explore cognitive effects following kava use. *Pacific Dynamics: Journal of Interdisciplinary Research*, 5(1), 74-92. doi.10.26021/10642

Aporosa, S.A., Ballard, H., Pandey, R. & McCarthy, M.J. (2022). The impact of traditional kava (Piper methysticum) use on cognition: Implications for driver fitness. *Journal of Ethnopharmacology*, (first online). doi.10.1016/j.jep.2022.115080

Aporosa, S.A., & Foley, E. (2020). De-mythologizing and re-branding the traditional drink kava. *Research Outreach* (113), 106-109. doi.10.32907/RO-113-106109

Sarris, J., Stough, C., Bousman, C. A., et al. (2013). Kava in the treatment of generalized anxiety disorder: A double-blind, randomized, placebo-controlled study. *Journal of Clinical Psychopharmacology*, 33(5), 643-648. doi.10.1097/JCP.0b013e318291be67

Showman, A. F., Baker, J. D., Linares, C., et al. (2015). Contemporary Pacific and Western perspectives on `awa (Piper methysticum) toxicology. *Fitoterapia*, 100, 56–67. doi.10.1016/j.fitote.2014.11.012

Ol man we i raetem atikol ia (About the authors)
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