

Pacific and Australasian TK and GRs

Transboundary (“Shared”) Genetic Resources and Traditional Knowledge

[WIPO/IPTK/GE/2/15](#)

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Shared GRs and TK

- Patent landscaping of 321 Australian native 'economic plants' with known Indigenous uses (Robinson, Forth. 2015)
- Hundreds of patents and applications identified
- Many that mention 'Australia' – only 2 mention 'aboriginal knowledge' in table 1.
- Many mentioned TK existing for plants found across Asia and the Pacific region, showing similarities in TK between countries
- Endemic plant patents: ~150

Table 1: Top 15 'Patent Hit' Counts by Species Name with known Indigenous Australian Uses.

Species name	Aboriginal or Australian common name	Number of Patents	No. of patents that mention 'Australia'	Approx. Known distribution
<i>Morinda citrifolia</i>	Ko-on-je-rung, Morinda, Indian Mulberry	314	50	N. Australia, Asia, Pacific
<i>Portulaca oleracea</i>	Munyeroo, Purslane, Pigweed	253	55	Widespread worldwide, weedy
<i>Nelumbo nucifera</i>	Muwulngini, Red lily, Lotus lily, Sacred lotus	200	18	Northern Australia, E. Asia
<i>Nicotiana benthamiana</i>	Tjuntiwari, Muntju	80	25	NW and central Australia
<i>Melia azedarach</i>	Dygal, Dtheerah, Kilvain, White cedar, Cape lilac , Chinaberry	76	8	N. Australia, Asia, Pacific
<i>Centipeda minima</i>	Gukwonderuk, kandjirkalara, kankirralaa Spreading sneezewood	61	2	Africa, Asia, Australia, Pacific
<i>Ocimum sanctum</i>	Sacred basil, Mooda, Bulla-bulla	57	23	N. Australia, Asia, Malesia
<i>Brucea javanica</i>	Brucea fruit, Macassar Kernels	43	4	N. Australia, Asia, Malesia
<i>Asparagus racemosus</i>	Asparagus Fern, Native Asparagus	30	13	N. Australia, Asia, Malesia
<i>Pongamia pinnata</i>	Napum-napum, Karum, Indian beech	30	23	N. Australia, Asia, Malesia
<i>Wikstroemia indica</i>	Bootlace Plant, Settler's Bootlace, Tie Bark, Tie Bush	28	0	N. Australia, Asia, Malesia, Pacific
<i>Boerhavia diffusa</i>	Common Spiderling, Giotcho, Hogweed, Tah Vine, Tar Vine	27	5	Worldwide tropics
<i>Euphorbia hirta</i>	Queensland asthma plant, Snake weed	24	59	Worldwide tropical and subtropical
<i>Nicotiana excelsior</i>	Giant Tobacco, Shiny-leaved Native Tobacco	20	26	Central Australia
<i>Calophyllum inophyllum</i>	Alexandrian Laurel, Beach Calophyllum, Indian Doomba Oil tree	17	10	N. Aust, widely in tropics, West Africa, Pacific.

Source: WIPO Patentscope (<http://patentscope.wipo.int/search/en/result.jsf>) analysis of 'front page' and 'full text' conducted by the author and colleagues. Distribution, common and Aboriginal names from multiple sources including Atlas of Living Australia, CABI

(<http://www.cabi.org/isc>) and Australian Tropical Rainforest Plants (TRIN) 6th edition.

Table 2: Endemic Australian Species with Documented ATSI IK and Associated Patents.

Species Name	Aboriginal and Common names	Aboriginal uses	Relevant Patents	Details of Patents
<i>Alphitonia excelsa</i>	Red Ash, Soap tree	Used to apply leaves to sore eyes. An infusion of the leaves in warm water was used for bathing in cases of headache, and an infusion of the bark, root and wood as rubbed on the body as a liniment for body pains. A bark and wood decoction was used as a gargle for toothache, it was drunk as a tonic. Young leaf tips were chewed for an upset stomach.	US 8,173,184 (filed 14/8/2009, issued 05/08/2012) Assigned to Mary Kay Inc.	Topical skin care formulations comprising botanical extracts (species noted in abstract)
<i>Davidsonia pruriens</i>	Orray, Davidson's Plum	The fruit is eaten and may have been used as an anti-bacterial.	23 patents found, only making superficial mentions of the species	All make minor mention for use as a potential ingredient in various cosmetic/ topical products and colour markers.
<i>Dodonaea lanceolata</i>	Hopbush	Western Australian Aborigines used to apply the bruised, cut up and boiled leaves, after slightly cooling them, to various parts of the body for the relief of pain, including snakebite. A very much more diluted decoction of the leaves may be drunk for the same complaints; at the same time leaves were tied under the belt to enhance the curative effect.	WIPO Publication number: WO/2011/057332 Int. filing date: 10/11/2010 Assigned to UniSA and Chuulangun Aboriginal Corp.	Anti-inflammatory compounds. Abstract cites <i>Dodonaea polyandra</i> and description mentions isolates of <i>Dodonaea</i> species.

Sources: WIPO registered patents in Patentscope: <http://patentscope.wipo.int/search/en/search.jsf> accessed 8/12/14). US Patent status – USPTO Public PAIR portal <http://portal.uspto.gov/pair/PublicPair> (accessed 5-6/12/14). JP2009197035 found at EPO: <http://worldwide.espacenet.com> (accessed 8/12/2014). Lazarides & Hince (1993), Lassak and McCarthy (2011) and Marrfurra et al (1995), Smith (1993) and Wightman et al. (1991) for Aboriginal uses. Richmond (1993) and Williams (2013) for *Eremophila* species. Gorman et al (2006) and Woods (1995) for *Terminalia ferdinandiana*.

Table 2 Continued:

Eremophila alternifolia	Emu bush, Scented Emu Bush, Narrow-leaved Emu Bush	Patent notes 'it was used internally and externally as a decongestant, expectorant and analgesic. It was reported that this treatment alleviated colds, influenza, fever and headaches and was used for septic wounds, inducing sleep and general well-being.'	WIPO Publication No. WO/1996/010408 Assigned to the 'Executive Director of the Western Australian Department of Conservation and Land Management'	Cardioactive compounds isolated from woody perennials (especially Eremophila species). Extensive Aboriginal uses noted in patent description. The patent indicates benefit-sharing.
Eremophila longifolia	Berrigan, Emu bush, Dogwood	Patent notes: 'It is a traditional Aboriginal medicinal plant used by Aborigines externally for sores and internally as a cure for colds.' Used as a 'smoke treatment' for mothers and new babies.	International app. filing no. PCT/EP2010/ 062774, to Patrick Prendergast (Australian), filed 31/08/2010.	Anti-bacterial compositions comprising extracts of eremophila longifolia and methods for use of same
Eremophila maculata	Emu Bush, Wedgerra, Tchuldani, Pitula	The Aborigines of the Hungerford district used the leaves as a blister when suffering from a cold. Parts of Eremophila spp. used in ceremonial rites, extracts and decoctions of plant parts have been used as liniments, medicines and antiseptics.	JP2009197035, filed 03/09/2009 (in Japanese only, found on EPO).	External Preparation for the skin. Several Eremophila species mentioned.
Terminalia ferdinandiana	Gubinge, Billy goat plum, Kakadu Plum	High energy food. May have had some medicinal uses (bark used to treat sores, boils, ringworm and leprosy).	19 patents and applications. Several related patents assigned to Mary Kay Inc., including US patent 8,691,300 (filed on 30/8/2010, granted on 8/4/2014).	Patents mainly for skin care products.

Transboundary/Regional IK

- High prevalence of traditional Chinese medicines (TCM) in some cases seeming to having similarity or overlap with Indigenous Australian knowledge, Indian knowledge or other TK from adjoining regions in Asia or the Pacific.
- Examples included patents on *Asparagus racemosus*, *Boerhavia diffusa*, *Calophyllum inophyllum* and *Callitris intratropica*, etc
- Often the source and origins not clear/not specified in the patents, highlighting the potential benefits of a disclosure of origin requirement to ensure that PIC and benefit sharing is occurring where relevant.

ABS Examples: Samoan – Prostratin case

- Dr Paul Cox from Institute of Ethnobotany (US) made a covenant with Falealupo in Samoa for the preservation of a rainforest area (pre-CBD).
- In exchange he had access to biological resources in the forest.
- Screened the Mamala plant (*Homalanthus nutans*) for medicinal properties.
- Now being developed as ‘Prostratin’ as an anti-AIDs drug candidate (Cox, 2001).



Robinson, D.F,
Falealupo.
March 2012.

ABS Examples: Samoan – Prostratin case

- ‘Mamala’ is weedy, found across the region
- Researchers in NZ first did R&D on the plant but for different bioactivity
- UCB, ARA have 2 ABS-like agreements.
- Benefits go to specific knowledge providers, and government (milestones and royalties)
- In interviews, some healers claimed they taught Dr Cox about various medicines.

Cook Islands - CIMTECH

- 3 patent applications
- Biologically active extract of *Hibiscus tiliaceus* and compositions – for bone regeneration
- Biologically active extracts of one or more *Vigna marina* (Burm.) Merr., *Cocos nucifera* L., or *Terminalia catappa* L, and compositions one or more of the extracts are described – skin and wound healing
- Government and Koutu Nui consulted – PIC
- Processing facility in Avarua; tech transfer, jobs, sustainable use of plants

Cook Islands - CIMTECH

- GR/TK user and provider!
- TK on bone/wound healing specific to Cooks and possibly parts of French Polynesia (Whistler, 1994).
- CIMTECH made ABS agreement with Koutu Nui in Cooks Islands
- Called ABS 'best practice' in CBD Outlook 4
- Questions about sharing with Taunga? Outer islands? French Polynesia? Other countries (hibiscus GR)?



Peplin Biodiscovery Case

- Milk Weed or Radium Weed (*Euphorbia peplus*) – commonly found weed in many countries, with widespread TK/home remedy for sunspots and skin care.
- R&D on gel made from extracts of the sap of the plant => drug for the treatment of certain types of skin cancer.
- Professor from UQ sold 'Peplin inc' to Leo Pharma for US\$287.5 million.
- Natural products still relevant: benefit-sharing? Global fund needed?

References:

- Photos: by Robinson 2012-2014.
- Robinson, D.F. (2015) *Biodiversity, Access and Benefit-Sharing: Global Case Studies*, Routledge, Oxon.
- Robinson, D.F. (2015 Forth) 'Identifying and Preventing Biopiracy in Australia: Patent trends for plants with Aboriginal uses' under review in *Conservation and Society*.
- Whistler, A. (1994) *Polynesian Herbal Medicines*, U.Hawaii Press, Honolulu.

