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Medicinal Plant Images

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I.E. Cock[a,b*]

[a]*Environmental FuturesResearch Institute, Nathan Campus, Griffith University, 170 Kessels Rd, Nathan, Brisbane, Queensland 4111, Australia*
[b]*School of Natural Sciences, Nathan Campus, Griffith University, 170 Kessels Rd, Nathan, Brisbane, Queensland 4111, Australia*

Figure 1: ***Kigelia africana*****(commonly known as sausage tree). Multiple parts of the *K. africana* tree have been used in traditional healing systems in the treatment of a variety of medical conditions and complaints. The powdered mature fruit is used to treat wounds, abscesses, and ulcers, whilst the green fruit is used to treat syphilis and rheumatism.[1-3] An infusion made from the ground bark and fruit is used to treat stomach problems in children.[1,3] Roots and bark are used to treat pneumonia.[1] In West Africa, leaves and twigs are used to treat wounds, dysentery, stomach and kidney disorders, snakebite, and rheumatism.[4] The fruit is used to treat constipation, gynaecological disorders, haemorrhoids, lumbago and dysentery.[4] Slices of mature baked fruits are used to ferment and flavour traditional African beer.[5] Extracts prepared from the bark have cytotoxic activities and have shown promising results in treating melanoma and renal carcinoma.[6] Bark and root solvent extracts have been reported to inhibit the growth of *Escherichia coli*, *Enterobacter aerogens*, *Klebsiellapneumoniae*, *Salmonella typhi*, *Proteus vulgaris*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Bacillus cereus*.[7] In a similar study, solvent extracts prepared from stem and root bark have also been shown to inhibit growth of *E. coli*, *P. aeruginosa*, *S.aureus and Candida albicans*.[8,9] Other studies have also reported antibacterial activity for K. *africana* leaf[10,11] extracts of particular interest, polar *K. africana* leaf extracts have been shown to inhibit the growth of the bacterial trigger of rheumatoid arthritis.[10] Extracts prepared from the *K. africana* fruit inhibited the growth of a panel of Gram positive and Gram negative bacteria.[11,12] Furthermore, extracts from various parts of the *K. africana* plant have been shown to have high antioxidant contents,[13,14] further indicating the therapeutic potential of this species.This photograph was taken Windhoek Botanical Gardens, Namibia in 2012 by Dr Ian Cock.**

Figure 2: ***Syzygium cordatum*** **leaves and fruit. Syzygiumis a large genus of evergreen flowering plants of the family Myrtaceae which consists of approximately 500 species. Plants of this genus are widespread, occurring in tropical and subtropical regions of South-East Asia, Australia and Africa. Many Syzygium species produce edible fruits and berries. S. cordatumis used to treat respiratory ailments, tuberculosis, gastro-intestinal disorders, diarrhoea and dysentery.[1] Recent studies have confirmed the antibacterial activity of** ***K. africana*** **leaf[10] extracts of particular interest was the potentgrowth inhibitoryof the extracts against the bacterial trigger of rheumatoid arthritis.[10] Many other Syzygium species internationally also have documented uses in traditional medicine. In the commercially most important species Syzygium aromaticum (clove), the unopened flower bud is used as a spice. This plant also has uses in traditional medicine due to its anaesthetic properties.[15] The antibacterial activity of** ***S. aromaticumis*** **also well known. Numerous studies have reported on the antibacterial[16] and antifungal[17] activities of oils and extracts from this plant. Other Syzygium species from South East Asia (Syzygium jambos),[18] India (*Syzygium lineare* and *Syzygium cumini*)[19] and Australia[20-24] have also been shown to have antimicrobial activity. Recent reports have also highlighted *Syzygium australe* (Bush Cherry)and *Syzygium leuhmannii* (Riberry) extracts as having exceptionally high antioxidant contents.[25] Antioxidants have been associated with the prevention of cancer, cardiovascular disease and neurological degenerative disorders.[26-28] They are also linked with anti-diabetic bioactivities and have been associated with the reduction of obesity. Antioxidants can directly scavenge free radicals, protecting cells against oxidative stress related damage to proteins, lipids and nucleic acids.[28] Thus the Syzygiums have potential in the treatment of a significant number of diseases and medical conditions related to cellular redox state.This photograph was taken in St Lucia, South Africa in 2013 by Dr Ian Cock.**

REFFERENCES

1. Van Wyk BE, van Oudtshoorn B, Gericke N. Medicinal plants of South Africa. 2nd Edition, Briza Publications. Pretoria, South Africa. 2009;
2. Hutchings A, Scott AH, Lewis G, Cunningham A. Zulu medicinal plants: an inventory. University of Natal Press. Pietmaritzburg, South Africa. 1996;
3. Watt JM, Breyer-Brandwijk MG. The Medicinal and Poisonous Plants of Southern and Eastern Africa. 2nd Edition, Livingstone, Pietmaritzburg, London, UK. 1962;
4. Jackson SJ, Houghton PJ, Photiou A, Retsas S. The isolation of a novel antineoplastic compound from a bioassay guided fractionation of stembark and fruit extracts of *Kigelia pinnata* (Bignoniaceae). Br J Cancer. 1996; 73(170): 68.
5. Laswai H, Wendelin A, Kitabatake N, Mosha TCE. The under-exploited indigenous alcoholic beverages of Tanzania: Production, consumption and quality of the undocumented "Denge.". African Study Monographs. 1997; 18(1): 29-44.
6. Houghton PJ. The sausage tree (Kigelia pannata), Ethnobotany and recent scientific work. African Botanicals. 2007; 68(1): 1-10.

7. Jeyachandran R, Mahesh A. Antimicrobial evaluation of *Kigelia africana* (Lam). Res J Microbiol. 2007; 2(8): 645-9.
8. Owolabi OJ, Omogbai KI, Obasuyi O. Antifungal and antibacterial activities of the ethanolic and aqueous extract of *Kigelia africana* (Bignoniaceae) Stembark. Afr J Biotechnol. 2007; 6(14): 1677-80.
9. Akunyili DN, Houghton PJ, Roman A. Antimicrobial activities of the stem of Kigelia pinnata. J Ethnopharmacol. 1991; 35(2): 173-7.
10. Cock IE, van Vuuren SF. Anti-Proteus activity of some South African medicinal plants: Their potential for the treatment and prevention of rheumatoid arthritis. Inflammopharmacol. 2014; 22: 23-36: DOI 10.1007/s10787-013-0179-3.
11. Grace OM, Light ME, Lindsey KL, Moholland DA, Staden JV, Jager AK. Antibacterial activity and isolation of antibacterial compounds from fruit of the traditional African Medicinal plant, Kigelia africana. S Afr J Bot. 2002; 68(2): 220-2.
12. Arkhipov A, Sirdaarta J, Rayan P, McDonnell PA, Cock IE. An examination of the antibacterial, antifungal, anti-Giardial and anticancer properties of *Kigelia africana* fruit extracts. Phcog Commn. 2014; 4(3): 62-76.
13. Arkhipov A, Sirdaarta J, Matthews B, Cock IE. Metobolomic profiling of *Kigelia africana* extracts with anti-cancer activity by high resolution andem mass spectroscopy. Phcog Commn. 2014; 4(4): 10-32.
14. Cai L, Wu CD. Compounds from *Syzygium aromaticum* possessing growth inhibitory activity against oral pathogens. Journal of Natural Products. 1996; 59(10): 987-90.
15. Arora DS, Kaur GJ. Antibacterial activity of some Indian medicinal plants. J. Natural Medicine. 2007; 61(3): 313-7.
16. Park MJ, Gwak KS, Yang I, Choi WS, Jo HJ, Chang JW, Jeung EB, Choi IG. Antifungal activities of the essential oils of *Syzygium aromaticum* (L.) Mer. Et Perry and Leptospermum petersonii Bailey and their constituents against various dermatophytes. Journal of Microbiology. 2007; 45(5):460-5.
17. Mohanty S, Cock IE. Bioactivity of *Syzygium jambos* methanolic extracts: Antibacterial activity and toxicity. Pharmacognosy Research. 2010; 2(1): 4-9.
18. Duraipandiyan V, Ayyanar M, Ignacimuthu S. Antimicrobial activity of some ethnomedicinal plants used by Paliyar tribe from Tamil Nadu, India. BMC Complimentary and Alternative Medicine. 2006; 6(35): 1-7.
19. Sautron C, Cock IE. Antimicrobial activity and toxicity of *Syzygium australae* and *Syzygium leuhmannii* fruit extracts. Phcog commn. 2014; 4(1): 53-60.
20. Chikowe G, Mpala L, Cock IE. Antibacterial activity of selected Australian Syzygium species. Phcog Commn. 2013; 3(4): 77-83.
21. Cock IE. Antibacterial activity of *Syzygium australe* and *Syzygium leuhmannii* leaf methanolic extracts. Phcog commn. 2012; 2(2): 71-7.
22. Cock IE. Antibacterial activity of selected Australian plant extracts. The Internet Journal of Microbiology. 2008; 4: 2.
23. Cock IE. Medicinal and aromatic plants – Australia. In Ethno pharmacology, Encyclopedia of Life Support Systems (EOLSS) 2011. Developed under the auspices of UNESCO. Oxford UK; EOLSS Publishers; 2011. Available from http://www.eolss.net.
24. Netzel M, Netzel G, Tian Q, Schwartz S, Konczak I. Native Australian fruits – a novel source of antioxidants for food. Innov Food Sci Emerg Technol. 2007; 8(3): 339-46.
25. Potter JD. Cancer prevention: epidemiology and experiment. Cancer Lett. 1997; 114(1): 7-9.
26. Mohanty S, Cock IE. The chemotherapeutic potential of *Terminalia ferdinandiana*: Phytochemistry and bioactivity. Pharmacognosy Reviews. 2012; 6(11): 29-36.
27. Cock IE. Problems of reproducibility and efficacy of bioassays using crude extracts, with reference to Aloe vera. Phcog Commn. 2011; 1(1): 52-62.
28. Rice-Evans C, Miller N, Paganga. Antioxidant properties of phenolic compound. Trends Plant Sci. 1997; 2(4): 152-9.