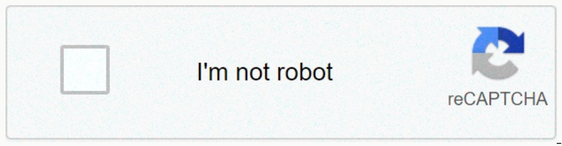

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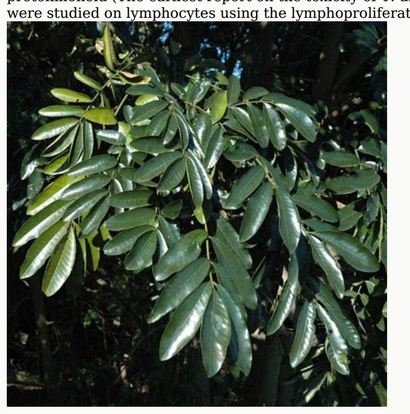
kamran@myplantopia.com2018-07-16T12:44:56-07:00 Access through your institutionVolume 4, Issue 1, 15 March 2011, Pages 1-9 rights and contentTrichilia emetica Vahl (also known as Natal Mahogany “Musikili”) belongs to the Meliaceae (Mahogany family). The genus name “Trichilia” is derived from Greek “tricho” referring to the 3-lobed fruits and “emetica” referring to the emetic properties of the tree.Many Trichilia species are planted for ornamental purposes, while others are used in traditional cosmetic formulations (Grundy and Campbell, 1993). About 20 Trichilia species have been identified in the southern African region (Allaby, 1998) of which T. emetica and T. dregeana are confined to the Limpopo and KwaZulu-Natal regions. These two species are considered close taxonomic allies thus causing confusion among local communities in terms of identification (Palmer and Pitman, 1972).T. emetica is an evergreen tree reaching 20–35 m in height and grows naturally throughout sub-Saharan Africa. The bark of the tree is smooth dark grey-brown and the diameter varies between 1.8 and 15 m.
T. emetica produces three to five pairs of leaflets with prominent veins on the lower surface. The characteristic dark glossy leaves (Fig.

1) reach a length of up to 70 cm (Allaby, 1998, Coates-Palgrave, 2000, Pooley, 1993). The flowers vary in colour from creamy to pale yellowish-green and are produced on short congested axillaries with five thick petals, which are about 2 cm long (Fig. 2). Flowering occurs between spring and summer (October and December) (Coates-Palgrave, 2000, Pooley, 1993).The furry fruits are rounded and red to brown in colour with three valve capsules (Fig. 3). These capsules split into three or four parts to reveal three to six shiny black seeds (18 mm long and 8 mm broad) each with a fleshy orange to red aril (Fig. 3). Fruiting occurs mainly between January and May (Allaby, 1998, Coates-Palgrave, 2000).T. emetica is widely distributed and grows naturally throughout sub-Saharan Africa extending from KwaZulu-Natal in the South, through Swaziland, Mpumalanga and Limpopo Provinces (South Africa), into Zimbabwe and northwards into Cameroon, Sudan and Uganda (Germishuizen and Meyer, 2003). It has a preference for areas with a high rainfall and is abundant along coastal areas (Cronquist, 1981).T. emetica is a coveted multipurpose tree which has been used throughout Africa for several centuries. The bark is used for carving ornaments, furniture and household implements. In the 19th century, it was used for repairing ships in the KwaZulu-Natal region (van Wyk et al., 2000, Coates-Palgrave, 2000). The VaVhenda tribe (South Africa) use the wood of T. emetica “Musikili” to construct the frame of an African traditional musical instrument called “mbila”. The valuable oleic acid-rich oilThe plethora of traditional uses noted for T. emetica has prompted scientists to screen for a wide range of biological activities including antibacterial, anticandidal, anti-inflammatory, antischistosomal, antiplasmodial, antitrypanosomal, anti-oxidant, antitussive, anticancer and hepatoprotective properties.
Results from these studies are discussed below and summarised in Table 2.Malnutrition is one of the major challenges faced by children and mothers in rural areas, hence a multivitamin juice was produced from T. emetica seeds and other edible indigenous plants to control malnutrition in a cost effective way (Saka and Msonthi, 1994). T. emetica seed weighs approximately 0.52 g and consists of a white kernel (72.6%) and a reddish husk (27.4%) (Henry, 1944). A chemical analysis was carried out on T. emetica seeds to confirm the protein, fat, crude fiber, water andMeliaceous plants are a rich source of limonoids and considered as good taxonomic markers in the Meliaceae family (Judd et al., 1999).
Plants such as Trichilia roka and Melia azedarach attracted considerable research interest, particularly because of their biologically active limonoid constituents (Zhou et al., 1996). Several limonoid compounds have been isolated from T. emetica and these include trichilin A, dregeana 4, trichilia substance Tr-B, nymania 1, rohituka 5 and seco-A protolimonoid (The earliest report on the toxicity of T. dregeana (closely related to T. emetica) dates from 1899 when an African woman died after drinking a decoction of the bark as a laxative. In 1908 it was also reported that the oil from the seed was poisonous (Watt and Breyer-Brandwijk, 1962). The toxicity of the leaves and stem bark extracts were studied on lymphocytes using the lymphoproliferation assay. The results indicated that the leaves were very toxic compared to the stem bark extract with IC50T. emetica is a coveted African tree and a wealth of indigenous knowledge and traditional uses have been documented for this species.



While this review has attempted to unite the relevant information for this species the data clearly suggests future research priorities. Convincing ethnopharmacological evidence is presented alluding to the extensive use of T. emetica as an antipyretic and the use of leaf and bark extracts to alleviate pain. The anti-inflammatory activity remains poorly explored, The authors would like to thank Tshwane University of Technology and the National Research Fund (South Africa) for financial support. We thank Prof. A.E. van Wyk for the photographs.S. Bah et al.J. Bero et al.T.E. Clark et al.D. Diallo et al.A. El Tahir et al.M.P. Germano et al.M.P. Germano et al.A. Geyid et al.B. Halliwell et al.S. Hoet et al.L.W. Khumalo et al.M. Nakatani et al.J. Ndamba et al.P. Pillay et al.S.M. Poulose et al.E.A.M. Prozesky et al.L.J. Shai et al.S.G. Sparg et al.M. Šutovskà et al.L. Verschaeve et al.J. Zhou et al.M. AllabyB.
Bah et al.A.T. BryantH.M. BurkillS.C. Chhabra et al.K. Coates-PalgraveA. CronquistC. Engelter et al.G. Farnarnier et al.Pakistan has large variety of medicinal plants distributed throughout the country. Due to the unavailability and high cost of allopathic medicines, herbal therapists, especially in rural areas, prescribe phytomedicine for Epilepsy. The native people consider such treatments most effective for seizures. The data of the effective antiepileptic medicinal plants of Pakistan were collected from the published research articles by exploring article search engines like PubMed, Medline, Web of Science, Google Scholar, and ScienceDirect.

Additional information such as mode of preparation and application of medicinal herbs were acquired from folk medicine users, traditional healers, and local people enriched in knowledge of herbal medicines. Total 97 families were uncovered to be used in epileptic and seizure disorders, of which, the foremost use belonged to Lamiacea 19 (18.56%), Asteraceae and Fabaceae 16 (16.5%) each, Fabaceae 11 (11.34%), Rubiaceae, Rutaceae, and Apocynaceae 6 (2.4%) each, Caesalpiniaceae, Solanaceae, Byrtaceae and Anacardiaceae 5 (2%) each, and Liliaceae, Mimosaceae, Ranunculaceae and Combretaceae 4 (1.6%) each. According to the plants habit, of 241 plants, herbs were 102 (42.15%), trees were 72 (29.75%), shrubs were 54 (22.31%), climbers were 12 (4.96%), and bulbs were 2 (0.83%). According to the part used, 105 (43.39%) plants were found to have antiepileptic potentials in leaves, 51 (31.07%) plants in roots, 20 (8.36%) plants in stem, 8 (3.31%) plants in rhizome, 4 (1.65%) plants in bulb, 32 (13.22%) plants in bark, 6 (2.48%) plants in gum, 19 (7.85%) plants in flowers, 18 (7.44%) plants in fruits, 24 (9.92%) plants in seeds, and 29 (11.98%) plants as a whole. This review provides foundation for researchers to understand the pivotal role of certain medicinal plants towards the treatment of epilepsy and seizures.Trichilia emetica is a coastal fruit tree species from sub-Saharan Africa that has a potential for commercial harvest for its edible and useful seed oils. However, the prediction of its fruit and seed yields is necessary to plan a profitable harvest. This study aims to calibrate allometric equations that predict the amount of fruits and the biomass of seeds of T. emetica. A total of 35 trees were selected based on seven classes of the diameter at breast height (DBH) in the Umkhanyakude district. The trees were measured during fruit maturation period. The measurements included the DBH, the canopy diameter, and the total height. Fruits were counted on each tree using randomized branch sampling technique. Twelve fruits were harvested per tree and were brought to the laboratory for the determination of biomass.

Six allometric models were identified and fitted to the data using ordinary least squares method. The Akaike information criterion (AIC) was used to select the best-fit models. The results suggested that simple linear models, basing solely on DBH (in cm), were the best predictors of both the number of fruits on the trees (NF) and the fresh seed biomass (SB; in kg) of T. emetica. The exponential forms of the best-fit general models were: (1) NF = 375.364 × DBH 1.009; and (2) SB = 1.858 × DBH 1.009. The prediction tests of these models indicated that the errors were large when predicting the fruit number and the seed biomass of smaller trees (DBH ≤ 20 cm) and bigger trees (DBH ≥ 30 cm). For medium-size trees (20 cm < DBH < 30 cm), the error was small. On the other hand, tree size category models developed in this study improved statistically the accuracy of predictions. The findings recommend the use of the fitted tree size category equations.Response surface methodology (RSM) was applied to predict optimum conditions for microwave-assisted extraction (MAE) of total limonoid (TL) and antioxidant potential investigation from Trichilia roka (Chiov) root bark. A central composite design methodology (CCDM) was used to minor the effect of the independent variables such as irradiation time (X1), irradiation power (X2), liquid-to-solid ratio (X3) and methanol polarity (X4) on the dependent variables namely total limonoid (TL), total polyphenol (TPP), DPPH radical scavenging activity and β-carotene antioxidant activity (AOA). The optimal combined conditions for extracting maximum TL (116 mg RUBE/gDW), TPP (12.5 g GAE/100gDW) and antioxidant activity (DPPH 90.1%; AOA 90.5%) were irradiation time 80 s, irradiation power 600 W, liquid to solid ratio 0.6/20 mL/g and methanol concentration 40%. All the factors significantly ($p < 0.01$) influenced the responses, the variations from the independent variables corresponding significantly to the predicted polynomial model and the maximum values estimated at the predicted optimal condition were in good agreement with experimental value. In conclusion MAE of antioxidant compounds from Trichilia roka (Chiov) root bark is highly influenced by equipment parameters of functioning (microwave irradiation time and power) as well as the solvent (liquid to solid ratio and methanol concentration), following a second degree polynomial model.The conservation of genetic resources has become a critical task for humanity as it has been realized that these resources are shrinking drastically. This problem is applicable, especially within the Bignoniaceae family, specifically Newbouldia laevis, a medicinal and socio-culturally important plant in Benin Africa. Due to its widespread application in traditional medicine in Benin, it has become a form of primary health care for the general populace, therefore making it necessary for scientific research. For this reason, an ethnobotanical survey was conducted in the lower Oueme valley in Benin (West Africa), where people use this plant to cure various diseases, and also for clinical and spiritual purposes. Data acquired by interviewing 785 respondents made up of local healers, herbalists and patients showed that the aerial parts of the plant are the most commonly used, while other parts are rarely used. The most frequently used method of administering the medicinal plant after pharmacological preparation was found to be the oral method. The results also revealed that N. laevis was used for treatment of various ailments and has played an important role in the daily lives of people living in the lower Oueme valley in Benin.Species of the family Meliaceae in traditional medicine are well documented. This study evaluated the antimicrobial efficacy and toxicity of aqueous, methanolic and dichloromethane leaf and bark extracts of South African Meliaceae against selected pathogens. The species sampled represent four of the seven indigenous genera and seven of the 14 indigenous species.
Antimicrobial activity was evaluated using the micro-plate dilution assay and the toxicity potential was determined using the brine shrimp lethality assay. About 69% of the extracts investigated showed moderate (0.25— 0.50 mg/ml) activities against the oral pathogens (Streptococcus mutans ATCC 25,175 and Fusobacterium nucleatum ATCC 25,586) tested. Pseudomonas aeruginosa and S. mutans was recorded as the most susceptible pathogens to the extracts. The antimicrobial activity of the extracts from Ekebergia pterophylla, Nymania capensis and Turraea obtusifolia (here documented for the first time) demonstrated varied activity depending on the pathogen. The aqueous extracts showed no antimicrobial activity with some exceptions against Streptococcus mutans (ATCC 25,175), where Ekebergia capensis and Trichilia dregeana exhibited noteworthy activity (0.13 mg/ml). In the brine shrimp assay, all DCM extracts of the studied parts of the plant species demonstrated minimal to no toxicity levels. The results obtained have lent credence to folkloric usage of some of the South African species of Meliaceae for anti-infective purposes including traditional uses against oral pathogens.Mafura butter (MB) obtained from seeds of Trichilia emetica Vahl is widely used in traditional cosmetic formulations throughout Southern Africa. It is gaining increasing popularity in the modern cosmetic industry due to growing consumer demand for natural cosmetics. However, the butter has a high melting point and low spreadability, which limits its emollient properties.
In the present study, MB was chemically and enzymatically interesterified with camellia oil (CO, Camellia oleifera C.Abel) at different ratios (90:10, 80:20, 70:30, 60:40 and 50:50 w/w) to produce formulations with improved physicochemical and cosmeceutical properties. Chemical interesterification (CI) was performed using sodium methoxide catalyst, while enzymatic interesterification (EI) was carried out with three different immobilized enzymes, including Lipozyme® TL IM, Lipozyme® RM IM and Lipozyme® 435. The original and interesterified blends were examined for fatty acid (FA) and triglycerides compositions, slip melting point (SMP), solid fat content (SFC), tocopherol and sterol contents, toxic heavy metal contents, radical scavenging activity (RSA) and in vitro ultraviolet radiation protection ability. Both CI and EI reduced SMP and SFC of interesterified products, resulting in products with improved consistency. Interesterification distributed cosmeceutically relevant unsaturated FA such as oleic acid, linoleic acid and linolenic acid in the products, depending on the ratios of MB and CO. The tocopherol and phytosterol contents in MB was 495.08 ± 19.02 and 842.61 ± 35.77 μg/g, respectively, while it was 438.6 ± 20.89 and 163.57 ± 20.47 μg/g, respectively in CO. The CI dramatically reduced the tocopherol contents up to 50 % in the products, while EI did not affect its content significantly. The ICP-MS analysis revealed that MB, CO and interesterified products does not contain toxic metals such as Sn and Hg, while Cr (< 0.18 ppm) and Pb (< 0.14 ppm) were present within the acceptable limits. Interesterified products showed promising RSA (with IC50 values in the range of 10.15 ± 0.79–12.30 ± 1.15 mg/mL), however, had a low in vitro sun protection factor (SPF < 0.2).View all citing articles on ScopusFour new limonoids, named granatumins V–Y (1–4), belonging to the small group of limonoids with a C1–C29 oxygen bridge and a Δ8,30 double bond, were isolated from the seeds of an Indian mangrove, Xylocarpus granatum, collected in the swamp of Krishna estuary, Andhra Pradesh. The constitutions and absolute configurations of these compounds were established by extensive NMR investigations, single-crystal X-ray crystallography using Cu Kα radiation, and by the comparison of circular dichroism spectrum.Four new compounds, including three new steroids (1–3) and one new sesquiterpene (6), and two new natural products (4–5), as well as three known steroids (7–9) were isolated from the twigs of Turraea pubescens. Compounds 3–5 are C22 steroids isolated from the Meliaceae family for the first time.

Their structures were elucidated by extensive NMR and MS analyses. Compound 1 exhibited inhibitory activity against lipopolysaccharide (LPS) induced nitric oxide (NO) production in RAW264.7 cells with an IC50 value of 11.5 μM.Traditional medicine plays a critical role in treatment of chronic debilitating and life threatening conditions and diseases. Cancer is one such condition whose therapeutic intervention is commonly through inexpensive traditional herbal remedies. Increasingly industrialised societies are developing drugs and chemotherapeutics from these traditional herbal plants.
Plant biogeography determines the abundance and availability of medicinal plants which in turn determine their use by local communities. The present study was carried out in Kakamega County of Kenya to identify and document medicinal plants used for treatment and management of cancer states by communities living adjacent to Kakamega Tropical rainforest of Kakamega County, Kenya.An ethnobotanical survey was done using semi-structured questionnaires administered to 32 randomly selected herbalists from Kakamega County.Sixty five (65) plants of 59 genera and 32 families were identified as candidates in therapeutic intervention against cancer states. Most commonly cited plant species were Spathodea campanulata P. Beauv. ssp. nilotica (Seem), Microglossa pyrifolia (Lam.) Kuntze, Harungana madagascariensis Lam. ex poir, Prunus africana (Hook. f.) kalkman, Cyphostemma serpens (A. Rich), Catharanthus roseus (L.) G. Don and Aloe volkensii Engl. The following were documented for the first time; Aeschynomene abyssinica (A. Rich.) Vatke, Synsepalum cerasiferum (welw.) T. D penn., Albizia coriaria Welw. ex Oliv., Aloe volkensii Engl. Bridelia micrantha (Hochst.) Baill, Croton macrostachyus Delile, Cyphostemma serpens (A. Rich), Dicliptera laxata C.B. Clarke, Ekebergia capensis Sparrm., Gardenia volkensii K. schum. ssp. volkensii, Glycine wightii (wight & Arn.), Ocimum gratissimum Suave, Olea hotcsh spp. hochstetteri, Pavetta abyssinica Fresen., Phyllanthus fischeri Pax, Psydrax schimperiana (A. Rich), Rhus vulgaris Meikle, Senna didymobotyra (Fresen.) Irwin and Barneby, Solanecio nandensis (S. Moore) C.
Jeffrey, Solanum mauritianum Scop, Spathodea campanulata P. Beauv. ssp.
nilotica (Seem), Spermacoce princea (K. Schum.) Verdc., Tabernaemontana stapfiana Britten, Tragia brevipes Pax and Zanthoxylum gilletii (De Wild.) P.G.Waterman.
The most frequently used plant parts were fresh or dried leaves and stem barks. Administration to patients was almost exclusively oral, with the exceptions being topical application especially for breast cancer and skin sarcomas.This study identified diverse medicinal plants used in therapeutic and management intervention against cancer by communities living adjacent to Kakamega Tropical Rainforest. The primary mode of administration was oral.Extracts of plant species, used traditionally to treat malaria, have been extensively investigated for their activity against Plasmodium intraerythrocytic asexual parasites in search of new antimalarial drugs.
However, less effort has been directed towards examining their efficacy in blocking transmission. Here, we report the results of the in vitro screening of extracts from eight selected plant species used traditionally to treat malaria in South Africa for activity against Plasmodium falciparum NF54 early and late stage gametocytes. The species used were Khaya anthotheca, Trichilia emetica, Turraea floribunda, Leonotis leonurus, Leonotis leonurus ex Hort, Olea europaea subsp. Africana, Catha edulis and Artemisia afra.To investigate the activities of extracts from plant species traditionally used for malaria treatment against P. falciparum gametocytes.Air-dried and ground plant leaves were extracted using acetone. Primary two point in vitro phenotypic screens against both early and late stage gametocytes were done at 10 and 20 μg/ml followed by full IC50 determination of the most active extracts. Inhibition of gametocyte viability in vitro was assessed using the parasite lactate dehydrogenase (pLDH) assay.Of the eight crude acetone extracts from plant species screened in vitro, four had good activity with over 50–70% inhibition of early and late stage gametocytes' viability at 10 and 20 μg/ml, respectively. Artemisia afra (Asteraceae), Trichilia emetica (Meliaceae) and Turraea floribunda (Meliaceae) were additionally highly active against both gametocyte stages with IC50 values of less than 10 μg/ml while Leonotis leonurus ex Hort (Lamiaceae) was moderately active (IC50<20 μg/ml). The activity of these three highly active plant species was significantly more pronounced on late stage gametocytes compared to early stages.This study shows the potential transmission blocking activity of extracts from selected South African medicinal plants and substantiates their traditional use in malaria control that broadly encompasses prevention, treatment and transmission blocking. Further studies are needed to isolate and identify the active principles from the crude extracts of A. afra, T. emetica and T. floribunda, as well as to examine their efficacy towards blocking parasite transmission to mosquitoes.Malaria is an infectious parasitic disease affecting most of countries worldwide. Due to antimalarial drug resistance, researchers are seeking to find another safe efficient source for treatment of malaria. Since many years ago, medicinal plants were widely used for the treatment of several diseases. In general, most application is done first on experimental animals then human. In this article, medicinal plants as antimalarial agents in experimental animals were reviewed from January 2000 until November 2020.In this systematic review published articles were reviewed using the electronic databases NCBI, ISI Web of knowledge, ScienceDirect and Saudi digital library to check articles and theses for M.Sc/Ph.D. The name of the medicinal plant with its taxon ID and family, the used Plasmodium species, plant part used and its extract type and the country of harvest were described.The reviewed plants belonged to 83 families. Medicinal plants of families Asteraceae, Meliaceae Fabaceae and Lamiaceae are the most abundant for use in laboratory animal antimalarial studies. According to region, published articles from 33 different countries were reviewed. Most of malaria published articles are from Africa especially Nigeria and Ethiopia. Leaves were the most common plant part used for the experimental malaria research. In many regions, research using medicinal plants to eliminate parasites and as a defensive tool is popular.Pittosporum viridiflorum Sims, a Pittosporaceae species, is used extensively in African traditional medicine (ATM) by various tribes. This review is an appraisal of the information concerning the description, distribution, conservation status, traditional uses, phytochemistry, pharmacology and toxicology of this species with the aim of reconciling it with its traditional use.A wide-ranging literature search was conducted using database platforms such as Scopus, Google Scholar, Web of Science, ScienceDirect, PubMed and books including local reports and thesis submissions.Ten categories to which P. viridiflorum finds use in traditional medicine (TM) were found, and they include well-being, wounds, treatment of veterinary ailments, gastrointestinal and sexually transmitted diseases, kidney, circulatory and inflammatory disorders, as well as diseases such as cancer, tuberculosis, and malaria. Pharmacological tests conducted include those investigating antimicrobial, antidiarrhoeal, antimalarial, anticancer, anti-inflammatory, antioxidant and acaricidal properties. Promising activity was shown in a number of assays. Toxicological effects have also been reported from this species. However, it is recommended to conduct a detailed toxicological study, including genotoxicity, as this has not yet been evaluated. Compound(s) with antimalarial, anticancer and acaricidal properties have been isolated from P. viridiflorum.The collective pharmacological and phytochemical properties of P. viridiflorum gives credence to the use of this plant species against various diseases in ATM, thus steering significant interest towards in vivo studies and further research.View full text