INVENTORY OF PLANTS USED IN TRADITIONAL MEDICINE IN TANZANIA. I. PLANTS OF THE FAMILIES ACANTHACEAE-CUCURBITACEAE

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Summary

Sixty-two plants are listed, which are used by traditional healers in the northeastern part of Tanzania. For each species are given: the botanical name with synonyms, vernacular name, collection number, locality, habitus, approximate distribution, and medical use. Results of a literature survey are also reported, including medical use, isolated constituents and pharmacological effects.

Introduction

Traditional medicine is an important part of the health-care system of Tanzania. In spite of an extensive programme to create health centers and to train Rural Medical Aids and Medical Assistants, the traditional healer is still the only medical practitioner available, within reasonable distance, to many Tanzanians living in the rural parts of the country. The number of traditional healers has been estimated to about 30 000 to 40 000, in com-
parison with about 600 Western-trained doctors, most of whom are working in hospitals in the big cities. Most of the healers use various parts of plants from the local flora as remedies. Only a small number of these plants have hitherto been identified. Haerdi (1964) identified 625 plants used by healers in villages around the town of Ifakara in central Tanzania. The Government Chemical Laboratory in Dar es Salaam has compiled a list (not published) of about 500 plants used in traditional medicine in various parts of Tanzania. Kokwaro (1976) has published a book listing plants used in traditional medicine in East Africa (Kenya, Tanzania and Uganda), but unfortunately the occurrence of the plants in the various countries is not mentioned.

This paper reports the results of an inventory of plants used by traditional healers in the districts of Handeni, Lushoto, Korogwe, Same and Tanga in the northeastern part of Tanzania. A literature review is also included, comprising reported medicinal uses, isolated constituents and pharmacological studies.

Methods

One of the main difficulties in making an inventory of plants used by traditional healers is that the healers usually keep their knowledge of the plants secret and are unwilling to reveal it to outsiders. In this respect Tanzania offers unique opportunities since it has been possible to use the political organization of the country to get in touch with the healers and persuade them to cooperate in the project. Thus, the first step in the planning of an expedition to a certain area was to enlist the help of the local political leaders to talk to the healers in the area and inform them of the subsequent arrival of a scientific expedition. The healers had to be convinced that their cooperation was of great benefit to the country and, at the same time, that their revelation of their knowledge of medicinal plants to the members of the expedition would not in any way interfere with the continued practice of their art. The political leaders were very successful in this task and secured the cooperation of a great number of healers.

The healers were interviewed as to what plants they used (vernacular name), plant parts used, preparation of the remedies, diseases treated and dose and regimen of the drugs. They were then asked to show the growing plants to the members of the expedition. Plant specimens were taken for botanical identification and subsequently pressed. Each plant was given a TMP number (TMP = Tanzania Medicinal Plant); six herbarium specimens were prepared for each plant. Samples were also taken of the plant parts used by the healers. These samples were intended for future phytochemical and pharmacological screening and were dried in the sun as rapidly as possible. Roots, tubers and other plant parts containing water, were cut to smaller pieces to facilitate drying.

The herbarium specimens were preliminarily identified at the Herbarium, University of Dar es Salaam. Definitive identification was performed at the Herbarium, Royal Botanic Gardens, Kew, Great Britain. One set each of the herbarium specimens has been deposited at the herbaria at Kew, University of Uppsala, University of Dar es Salaam, the Government Chemical Laboratory, Dar es Salaam, and The Traditional Medicine Research Unit, Muhimbili Hospital, Dar es Salaam. Plants of these collections are referred to by their respective TMP numbers as given in this and following papers. The definitive botanical identifications were performed by the Department of Systematic Botany, University of Uppsala. Data on synonymy and distribution have been extracted from a number of recent African floras, such as Flora of Tropical East Africa, Flora of West Tropical Africa, Flora Zambesiaca, etc., as well as from numerous taxonomic revisions and from manuscript notes and annotations in the Kew Herbarium.

A literature survey of the identified plants was performed at the Department of Pharmacognosy, University of Uppsala. The main information sources were Chemical Abstracts Vols. 1 - 92 (1907 - 1980), and the monographs of Haerdi (1964), Kerharo and Adam (1974), Kokwaro (1976) and Watt and Breyer-Brandwijk (1962).

Results and discussion

Two expeditions were undertaken. The first took place during two weeks in November - December, 1978, and covered the districts of Lushoto (two villages), Korogwe (four villages) and Tanga (four villages). Participants were: O. Hedberg, C. Marksström, E. Nilsson and G. Samuelsson, University of Uppsala, Sweden; P. J. Madati, Y. Pawa and H. Pazi, Government Chemical Laboratory, Dar es Salaam; E. N. Mshiu and R. L. A. Mahunnah, Traditional Medicine Research Unit, Muhimbili Hospital, Dar es Salaam; B. Mhor and W. R. Mziray, Department of Botany, University of Dar es Salaam. During this expedition 103 healers were interviewed and 167 plant samples collected. The second expedition was launched in November - December, 1979, for two weeks in the districts of Handeni (six villages) and Same (three villages). Participants were: O. Hedberg and G. Samuelsson, University of Uppsala; P. J. Madati and Y. Pawa, Government Chemical Laboratory, Dar es Salaam; E. Mshiu and R. L. A. Mahunnah, Traditional Medicine Research Unit, Muhimbili Hospital, Dar es Salaam; B. Mhoro and Suleman, Department of Botany, University of Dar es Salaam. Seventy-one healers were interviewed and 104 samples collected.

All healers were interviewed, but for various reasons it was not possible to obtain plant material from all of them. The total of 271 specimens collected was obtained from 114 healers. The number of plants given by each of these healers varied from 1 to 16. The interviews showed that the healers knew more plants than the ones we were able to collect. Several reasons account for the relatively low number of plants obtained from each healer. Not all the plants that the healer knew were available at the time of the year when the interviews were performed. Many healers lived a fairly
large distance from the village where the interview was performed and were not able to find all the plants they used within a reasonable distance from this place. The time which the expedition could stay in one village was limited. That one healer may know and use a considerable number of plants is evident from a study by Harjula (1980), who spent 9 months with one healer in Kikatiti village, 32 kilometers from Arusha on the way to Moshi, Tanzania. This healer alone used 130 different plants in his practice.

It is thus evident that a reasonably complete survey of all the plants used by the healers, even in only one district, would require a much bigger investment of time, personnel and money than could be raised for these two expeditions.

One question in a survey of this kind is to what extent the healers can be trusted to give correct information of the plants they use. There is, of course, no absolutely reliable way of checking this, but the following evidence indicates that most of the healers probably gave a true account of the plants they used: (1) we obtained a considerable number of duplicates, i.e. the same plants were shown to us by several healers; (2) most of the plants collected have been reported in the literature to have been used as medicinal plants.

The following list enumerates the plants identified from the two expeditions in alphabetical order, with respect to families and to genus within the families. In a few cases definitive determination was impossible because of insufficient material — this is indicated by “cfr.” in front of the relevant name. When one collection out of two or more of the same species was insufficient for safe determination, the collection number is given in parentheses. The following abbreviations are used:

**Syn:** synonyms.

**TMP:** (followed by number): collection number (TMP = Tanzania Medicinal plants). Parentheses around the TMP number indicates that the botanical identification is not definitive.

**V:** vernacular name. The vernacular names are those given by the healers and, unless otherwise stated, they are in the language of the district where the plants were collected. These languages are: Handeni district, Zigua; Lushoto district, Sambaa (Shambaa); Korogwe district, Sambaa; Same district, Pam; Tanga district, Digo and Swahili. Vernacular names within parentheses relate to TMP specimens for which the botanical identification is not definitive.

**L:** locality.

**H:** habitus.

**D:** approximate distribution.

**Med:** plant part used, preparation of remedy and medicinal use. In some cases the healers mixed parts from several different plants when preparing the remedy. These plants are noted by their vernacular names. The corresponding botanical name is given only when a TMP specimen could be collected and identified. Parentheses around the description of the medicinal use relates to TMP specimens for which the botanical identification is not definitive.

**Lit:** literature.

**U:** reported use.

**C:** reported constituents.

**P:** reported pharmacological effects.

The following frequently cited references will be referred to by abbreviated citations as follows: Haerdi = Haerdi (1964); Kerharo = Kerharo and Adam (1974); Kokwaro = Kokwaro (1976); Watt = Watt and Breyer-Brandwijk (1962).

### ACANTHACEAE


### AMARANTHACEAE

**Achyranthes aspera** L. TMP: 103. V: Kiandama. L: Korogwe district, Kwasemangube village. H: Herb. D: Throughout Africa. Med: Decoction of roots drunk against diseases of the spleen and stomach-ache. Lit: U: Roots: For treatment of rheumatism and, applied externally, against pneumonia (Haerdi). For treatment of venereal diseases, to cure stitch, and as a laxative. Applied externally on wounds to stop bleeding (Kokwaro). For relief of stitch, as a digestive and stomachic, as a remedy for piles, as a diuretic, as an emetic. Externally to stop bleeding of wounds (Watt). Leaves: Dry, powdered leaves to treat ankle sprains. As a remedy for headache (Kokwaro). As a remedy for boils and abscesses, as an emetic (Watt). Against diarrhoea, externally to heal wounds after circumcision, to hasten the maturing of abscesses and to extract thorns from the feet (Raponda-Walker and Sillans, 1961). Entire plant or aerial parts: Externally in artificial wounds for treatment of pneumonia (Haerdi). Boiled and the fumes inhaled for treatment of colds. Also used in hot baths for the same purpose. For making snuff, as a digestive and stomachic, as a remedy for piles and as a diuretic. For treatment of renal dropsy and bronchial infections. Applied locally to bites of insects, scorpions and snakes. The juice of the plant is used to dissipate opacity of the cornea and to relieve toothache and dysentery (Watt). As a diuretic (Kerharo). Seeds: To treat snake bites, hydrophobia
and itching, as an emetic and for application to inflamed and enlarged glands (Watt). C: The roots contain a glycoside fraction with oleanolic acid as the aglycone (Khastgir and Sen Gupta, 1958). Oleanolic acid is also the aglycone of a saponin isolated from the seeds and containing glucose, galactose, xylose and rhamnose in the sugar moiety (Gopalkari and Dhar, 1958; Khastgir et al., 1958). The aerial parts of the plant contain achyranthine, which is the betaine of N-methylpyrrolidine-3-carboxylic acid (Basu, 1957) and 0.01% of a CHCl₃-soluble basic fraction (Kapoor and Singh, 1967). F: Extracts of the plant have antidiabetic activity and are effective against lepra (Kerharo). The CHCl₃-soluble basic fraction (Kapoor and Singh, 1967) has a transient hypertensive activity, a positive inotropic effect, a transient stimulating effect on respiration and is spasmylic on smooth muscle (Kapoor and Singh, 1967). The saponin fraction of the seeds has a positive inotropic effect and increases the activity of phosphorylase A in the heart of the rat (Gupta et al., 1972, Ram et al., 1971). Achyranthine has a hypotensive effect and is negatively inotropic; it dilates blood vessels and increases the rate and amplitude of respiration. A spasmonogenic effect on frog's rectus muscle and diuretic and purgative effects in albino rats were also observed (Neogi et al., 1970). A benzene extract of the plant has a 100% abortifacient activity in the rabbit at a dose of 50 mg/kg body weight (Pakrashi and Bhattacharya, 1977).

**ANACARDIACEAE**


**ANNONACEAE**

_Annona senegalensis_ Pers. subsp. _senegalensis_. Syn: _Annona chrysophylla_ Boj., _A. chrysophylla_ Boj. var _porpetac_ (Baill.) Robyns & Ghesq., _A. porpetac_ Baill., _A. senegalensis_ Pers. var. _porpetac_ (Baill.) Diels, _A. senegalensis_ Pers. var. _chrysophylla_ (Boj.) Sillans, _A. senegalensis_ Pers. var. _latifolia_ Oliv. TMP: 22, 48, 66, 71, 78. V: Mbokwe, Mtsete. L: Tanga district, Mpiri, Lumbwa, Pongwe, Pongweni villages. H: Tree. D: Tropical Africa. Med: Decoction of roots and leaves drunk against abdominal pain (due to muscle contraction); paste of roots ground with water applied on snake bites and on abscesses and wounds; decoction of roots mixed with roots of Mbono and male pawpaw tree drunk against Kisonono (gonorrhoea?). Lit: U: Roots: Expectorant and, externally, for treatment of tumors (Haerdi). To treat colds (Kokwaro). As a homicidal poison, to treat sterility in women, boiled with sodium carbonate to treat venereal diseases and gastrointestinal complaints, for treatment of sleeping sickness, against diarrhoea, to wean a child from its mothers breast, externally for treatment of snake bites (Watt). Febrifuge, antitussive, diuretic, anti-infectant, wound-healer. Also used against diseases of the respiratory organs, ears and skin as well as to treat dermatoses, ulcer, rheumatism, blenorragia and other diseases (Kerharo). For treatment of diarrhoea (Sandberg, 1965). _Leaves_: To treat diarrhoea (Haerdi). Against snake bite, as an eye-lotion, for treatment of guinea worm, as a remedy for fever conditions (Watt). Kerharo lists the same use for the leaves as for the roots. _Stem bark_: For treatment of buboes and snake bite, as an emetic and for homicidal purpose, for stomach-ache, for skin eruptions, as a mouth-wash against toothache (Watt). Anti-diarrhoeicum, antidysentericum, against sterility in women and to produce lactation (Kerharo). C: The bark gives positive tests for alkaloids, tannin and saponins. The leaves contain rutine, quercitrine and quercetine (Kerharo). The plant contains a glycoside and a cyanogenetic resin. The bark contains 0.02% anonaine and 0.14% of another alkaloid (Watt).


Uvaria cfr. leptocladon Oliv. TMP: 115. V: Mshofu. L: Tanga district, Kwaemaugibe village. H: Shrub. D: E. Africa. Med: Decoction of roots mixed with roots of Mshashu (Conyza pyrrhopappa A. Rich. subsp. longifolia (O. Hoffm.) Wild, TMP 116), Mgusapungu and Mienga drunk against attacks, similar to epilepsy, in children. Lit: U: Roots: Against malaria and as aphrodisiac (Haerdi). For relief of epilepsy, for lunacy and possession by spirits, for sunstroke and tonsillitis (Watt). Leaves: Externally, together with a bark extract, for treatment of hydrocele (Haerdi). For treatment of gonorrhea, testicle inflammation, dysentery, snake bites, sore eyes and to facilitate child's birth (Kokwaro). For treatment of blackwater fever, as a remedy for stomach complaints, haematuria, syphilis and as a cough remedy (Watt). Entire aerial parts: As a snake-bite remedy and as an emetic (Watt). Latex: As a lactagogue (Haerdi). C: The root bark contains the alkaloids yohimbine, beta-yohimbine, tombozine (= normacucine B), stemmadenine, condylocarpine, norfluorocurarine and mossambine (Stauffacher, 1961; Goutarel et al., 1961; Monseur et al., 1962). P: Tombozine is sympatholytic and ganglionic blocking with a hypotensive activity greater than that of reserpine. Tombozine causes depression of conditioned reflex activity and, in combination with akuammicine, an increase of the blood sugar level. Local anaesthetic activity is also reported (Quevauviller and Takenaka, 1962; Sultanov and Saidkasymov, 1965; Nasirov et al. 1966; Sadritinov et al., 1967; Sultanov and Saidkasymov, 1971; Akhmedkhodzhaeva et al., 1971; Sultanov, 1971). Stemmadenine has very little effect on arterial blood pressure but increases the hypertensive effect of adrenaline and the vasocostriction caused by this drug (Raymond-Hamet, 1960). A patent for a total extract of the bark, useful as an anti hypertensive drug, has been filed (Raymond-Hamet, 1968).

Voacanga africana Stapf. Syn: Voacanga lutescens Stapf, V. boehmii K. Schum. p.p. TMP: 283. V: Mberebere (Sambaa and Pare). L: Same district, roots boiled with coconut as purgative against constipation and to relieve stomach pain; decoction of roots mixed with roots from Mwinikangu against mental disease; leaves mixed with leaves of Mvuma-Mke (Premna chrysocladia (Boj.) Gürke, TMP 64), Mwinikangu and Mchelele soaked in cold water and the extract used for bathing the patient against mental disease. Lit: U: Decoction of roots and juice of leaves drunk against hookworm (Haerdi).

APOCYNACEAE

Diplorhynchus condylocarpon (Müll. Arg.) Pichon. Syn: Diplorhynchus angolensis Böttner, D. angustifolia Stapf, D. condylocarpon subsp. angolensis (Bütt.) Duvign., D. condylocarpon subsp. mossambicensis var. psilopus (Welw.) Duvign., D. mossambicensis Bth., D. psilopus Welw., D. welwitschii Rolfe. TMP: 266. V: Mtogo. L: Handeni district, Segera-Michuwangi village. H: Tree. D: Tropical and S. Africa. Med: Powdered stem bark (fresh or dry) mixed with porridge against rectal prolapse. Extract of stem bark prepared with cold water is used to treat "fluidy semen" and "light blood". Lit: U: Roots: A decoction of the root is used for gonorrhoea, as a vermifuge, against bilharzia and as a spasmyloytic for treatment of colic.Externally, together with a bark extract, for treatment of hydrocele (Haerdi). For treatment of gonorrhoea, testicle inflammation, dysentery, snake bites, sore eyes and to facilitate child's birth (Kokwaro). For treatment of blackwater fever, as a remedy for stomach complaints, haematuria, syphilis and as a cough remedy (Watt). Leaves: As a headache remedy (externally) and to treat indigestion, haematuria and syphilis (Watt). Fruits: The vapour from the fruit, boiling in water, is used as a cough remedy (Watt). Entire aerial parts: As a snake-bite remedy and as an emetic (Watt). Latex: As a lactagogue (Haerdi). C: The root bark contains the alkaloids yohimbine, beta-yohimbine, tombozine (= normacucine B), stemmadenine, condylocarpine, norfluorocurarine and mossambine (Stauffacher, 1961; Goutarel et al., 1961; Monseur et al., 1962). P: Tombozine is sympatholytic and ganglionic blocking with a hypotensive activity greater than that of reserpine. Tombozine causes depression of conditioned reflex activity and, in combination with akcatonine, an increase of the blood sugar level. Local anaesthetic activity is also reported (Quevauviller and Takenaka, 1962; Sultanov and Saidkasymov, 1965; Nasirov et al. 1966; Sadritinov et al., 1967; Sultanov and Saidkasymov, 1971; Akhmedkhodzhaeva et al., 1971; Sultanov, 1971). Stemmadenine has very little effect on arterial blood pressure but increases the hypertensive effect of adrenaline and the vasocostriction caused by this drug (Raymond-Hamet, 1960). A patent for a total extract of the bark, useful as an anti hypertensive drug, has been filed (Raymond-Hamet, 1968).

Kisiwani village. H: Tree. D: Tropical Africa. Med: Fruits with seeds are extracted with cold water for 7 days and the extract used against “internal sores” (cancer?). Roots (outer dirty bark removed) are dried, powdered and sieved. The powder is mixed with soft porridge and used against kidney trouble, abnormally frequent menstruations, and too frequent urinating in men. Smoking is not allowed during treatment. Lit: U: Roots: Decoction drunk against dysmenorrhea and for treatment of spasms of the heart (angina pectoris?) (Haerdi). Stem bark: Decoction used for treatment of spasms of the heart (angina pectoris?) (Haerdi). C: Root bark and stem bark: These parts contain a great number of indole alkaloids. The total alkaloid content is 9.2% in the root bark and 3.9% in the stem bark (Percheron, 1959). The main alkaloids are the same in the two types of bark. The following alkaloids have been isolated and their structure determined: coro-

naridine, decarboxymethoxyvoacamine, 3-epi-α-yohimbine, ibogamine, iboga-

mine, iboluteine, iboxygaine, N-oxyoacamine, perakine, pseudoyohimbine, reserpine, voacafrine, voacaficine, voacamine, voacaminine, voacangine, voacangine hydroxindolenine, voacangine lactam, voacorine, voacrine, voacrystine, voabasine, vobtusine and β-yohimbine (Budziekiewicz et al., 1963; Janot and Goutarel, 1955a, 1955b; Percheron, 1959; Pusieux et al., 1967; Rao, 1958; Renner 1957, 1959; Renner and Prins, 1959, 1961; Renner et al., 1963; Stauffacher and Seebeck, 1958; Thomas and Biemann, 1968a, 1968b). The main alkaloids of the stem bark are: voacangine, voacamine, voacorine, voacristine and vobasine (Thomas and Biemann, 1968a). Leaves: Besides voacamine and voabasine, which also occur in stem bark and root bark, the leaves contain the following alkaloids: desoxyvoabasine lactone, folicangine, isovoafoine, voafoine, voafolidine, voaphylline, voaphylline-diol, voaphylline hydroxindolenine, voabasine lactone (Kunesch et al., 1967a, 1967b, 1968a, 1968b, 1970, 1971; Rolland et al., 1976). The total alkaloid content is 0.2% with voaphylline as the main alkaloid (0.026%) (Kunesch et al., 1968a). Seeds: The seeds contain taber-

sonine (Kunesch et al., 1968a). P: The total alkaloids from root bark or stem bark have a ventricular stimulating effect with direct action on the myocardium. They are also hypotensive and have weak sympatholytic and parasympatholytic activities (Quevaunville et al., 1965). The total alkaloids from the root bark have marked neuroplegic activities. The acute and chronic toxicity is low (Vogel and Uebel, 1961). Voacamine and voacorine are cardiotonics. Voacamine has a positive inotropic effect, but no negative chronotropic effect. It is hypertensive and has parasympathomimetic and sympatholytic effects. Voacorine has a positive inotropic and a negative chronotropic effect. It is hypertensive and has parasympatholytic and sympatholytic properties. Both alkaloids depress the central nervous system. They are 0.01–0.005 times as toxic as Digitalis glycosides (Quevaunville and Blanpin, 1957a, 1957b). Voacangin and voacristine have negative chronotropic effects (Zetler et al., 1968). Voangain and, to a lesser extent, voacristine antagonize the positive chronotropic and inotropic effects of noradrenaline on the isolated guinea-pig atrium in a non-functional way, but not as β-adrenergic blocking drugs (Zetler and Singbard, 1970). Voacangine is hypotensive but has no ganglioplegic, anticholinesterase, parasympatholytic or antihistaminic action. It also shows a central depressant activity (Blanpin et al., 1961). Voacangine and voacrine are not tremorgenic when injected intracerebrally in mice (Singbard et al., 1973). The central effect of voacangine, voacamine, voacamidine, voacorine and ibogaine have been studied (Zetler and Unna, 1959). The structure–activity relationship in the cytotoxicity of voacamine, voacamidine, voacangine and vobasine was studied by Kingston (1978).

ASCLEPIADACEAE


strophanthinid, 16-dehydrostrophanthinid, strophanthidol, 16-dehydro-

strophanthinid and convallatoxin as aglycons (Berthold et al., 1965a, 1965b; Mauli and Tamm, 1957; Schenker et al., 1954).

BERRBERIDACEAE


BIGNONIACEAE

I To cure stomach troubles (Kokwaro).

Markhamia obtusifolia (Bak.) Sprague. Syn: Dolichandrone obtusifolia Bak., Markhamia lanata K. Schum., M. paucifoliolata De Wild., M. verdickii De Wild. TMP: 159, 164A. V: Muyuyu (Makonde). L: Korogwe district, Kijango (Kienyeni) and Semangube villages. H: Shrub. D: Tropical Africa. Med: Powdered root wood (no bark) is macerated with cold water and filtered. A piece of burning charcoal is added to the filtrate which is drunk against tachycardia. Lit: U: Roots: A decoction of the roots is used against scrofula, hookworm; as a cough remedy and for treatment of snake bites (Haerdi). Roots boiled with water together with stem bark and leaves as well as other plants is used as an inhalant. Chewed roots to treat convulsions in children (Kokwaro). Leaves: For treatment of snake bites (Haerdi, Kokwaro). Aerial parts of the plant: To cure stomach troubles (Kokwaro).


[ A decoction of a mixture of the root, the stem bark and the root of Mmna (Combretum collinum Fresen, TMP 135) is used for treatment of excessive menstrual bleeding. Lit: U: Roots: A decoction of the roots is drunk in connection with treatment of wounds by preparations of the bark (see below) (Haerdi). For treatment of sterility in combination with roots of different Ficus spp. (Kerharo). For treatment of gynecological conditions and as a remedy for boils and sore throat (Watt). Stem bark: Externally for wound-healing (Haerdi). To cure headache (Kokwaro). Mixed with stem bark of Mitragyna inermis, roots of Fagara xantoxyloides and seeds of Sterculia setigera for treatment of epileptic conditions (Kerharo). For treatment of wounds, ulcers and abscesses. As a remedy for syphilis and gonorrhoea. For rheumatism and dysentery (Watt). As an expectorant and cough remedy (Sandberg, 1965). Leaves: To cure malaria (Kokwaro). Fruits: Beer made with the fruit is used for bathing children against measles (Kokwaro) As an intoxicant and sexual stimulant. For treatment of haemorrhoids. Externally on a woman's breasts to produce lactation. For treatment of gynecological conditions (Watt). The unripe fruit is poisonous and is used externally for treatment of syphilis and rheumatism. (Watt). Seeds: Roasted seeds mixed with beer cause the sexual organs to enlarge (Kokwaro).

Markhamia obtusifolia (Bak.) Sprague. Syn: Dolichandrone obtusifolia Bak., Markhamia lanata K. Schum., M. paucifoliolata De Wild., M. verdickii De Wild. TMP: 159, 164A. V: Muyuyu (Makonde). L: Korogwe district, Kijango (Kienyeni) village. H: Shrub. D: Tropical Africa. Med: Powdered root wood (no bark) is macerated with cold water and filtered. A piece of burning charcoal is added to the filtrate which is drunk against tachycardia. Lit: U: Roots: A decoction of the roots is used against scrofula, hookworm; as a cough remedy and for treatment of snake bites (Haerdi). Roots boiled with water together with stem bark and leaves as well as other plants is used as an inhalant. Chewed roots to treat convulsions in children (Kokwaro). Leaves: For treatment of snake bites (Haerdi, Kokwaro). Aerial parts of the plant: To cure stomach troubles (Kokwaro).

BOMBACACEAE

Adansonia digitata L. Syn: Adansonia spheroarpa A. Chev. TMP: 130. V: Mbuyu. L: Korogwe district, Mombo village. H: Tree. D: Hotter and drier parts of tropical and subtropical Africa, Madagascar, India. Med: A decoction of the stem bark also containing stem bark of Moza (Sterculia cfr. stenocarpa H. Winkler, TMP 133) and Mfume (Sterculia cfr. appendiculata K. Schum., TMP 137) as well as plant debris left behind by floods ("Shiizi") is used for treatment of a gynecological complaint called Chashi, the symptom of which is more or less pronounced vaginal bleeding. Lit: U: Roots: Decoction as a remedy for lassitude (Kokwaro). Stem bark: Powder, mixed with porridge for treatment of malaria. Decoction to rinse the mouth against toothache (Haerdi). Decoction drunk to cure pains in the body and for bathing infants if they are weak. In steam baths for high fever and as a diaphoretic (Kokwaro). As a febrifuge and as antidote to Strophanthus poisoning (Watt). Against menorrhagia, anaemia, rachitis and as a tonic and a febrifuge (Kerharo). Leaves: As a diaphoretic, expectorant, astringent and a prophylactic against fevers. Also to check excessive perspiration (Watt). Against diarrhoea, fever and inflammations and externally against filaria (Kerharo). As anthelmintic, antiastmatic, febrifuge, diuretic and for treatment of eyes and ears (Pernet, 1957). Fruits and seeds: As a dysentery remedy. The fruit pulp to cure fevers, hemoptysis and diarrhoea (Watt). A decoction of the fibers of the fruit is used as an emmenagogue. The seeds and fruit pulp to cure intestinal inflammations and dysentery (Kerharo). C: The stem bark contains adansonin which has a cardiotonic activity (Watt). The leaves contain adansonia flavonoside (Kerharo). All organs of the tree contain mucilage, rich in uronic acids (Kerharo). P: An extract of the leaves has a hypotensive activity when injected intravenously in dogs. It also prevents asthmaic attacks induced by histamine in guinea pigs (Vincent et al., 1946). A tincture of the leaves produces hypotension, bradycardia and polypnea in the dog, but has no appreciable effect on histamine-induced asthma in guinea pigs. Adansonia flavonoside decreases the capillary permeability in the rabbit, but is less active than rutine (Paris and Moyse-Mignon, 1951). Extracts of the bark have proved ineffective against malaria (Watt).

BORAGINACEAE

Cordia ovalis R. Br. Syn: Cordia bequaerti De Wild., C. kabarensis De Wild., C. mixa Hochst. ex A. Rich. p.p, non Linn., C. rubra Hochst. ex A. Rich. TMP: 207. V: Mshasha. L: Handeni district, Magarimabovu village. H: Tree. D: Tropical Africa. Med: Decoction of root against leprosy. Lit: U: Roots: The pounded roots are used as a poultice for wounds with pus (Kokwaro). Leaves: For eye-ache. Externally as a steam bath and for washing in the treatment of leprosy. The cure also involves rubbing in a paste of the pounded bark (Kokwaro). Watt records exactly the same treatment for the treatment of leprosy (Kokwaro). Decoction of the stem bark also containing stem bark of Moza (Sterculia cfr. stenocarpa H. Winkler, TMP 133) and Mfume (Sterculia cfr. appendiculata K. Schum., TMP 137) as well as plant debris left behind by floods ("Shiizi") is used for treatment of a gynecological complaint called Chashi, the symptom of which is more or less pronounced vaginal bleeding. Lit: U: Roots: Decoction as a remedy for lassitude (Kokwaro). Stem bark: Powder, mixed with porridge for treatment of malaria. Decoction to rinse the mouth against toothache (Haerdi). Decoction drunk to cure pains in the body and for bathing infants if they are weak. In steam baths for high fever and as a diaphoretic (Kokwaro). As a febrifuge and as antidote to Strophanthus poisoning (Watt). Against menorrhagia, anaemia, rachitis and as a tonic and a febrifuge (Kerharo). Leaves: As a diaphoretic, expectorant, astringent and a prophylactic against fevers. Also to check excessive perspiration (Watt). Against diarrhoea, fever and inflammations and externally against filaria (Kerharo). As anthelmintic, antiastmatic, febrifuge, diuretic and for treatment of eyes and ears (Pernet, 1957). Fruits and seeds: As a dysentery remedy. The fruit pulp to cure fevers, hemoptysis and diarrhoea (Watt). A decoction of the fibers of the fruit is used as an emmenagogue. The seeds and fruit pulp to cure intestinal inflammations and dysentery (Kerharo). C: The stem bark contains adansonin which has a cardiotonic activity (Watt). The leaves contain adansonia flavonoside (Kerharo). All organs of the tree contain mucilage, rich in uronic acids (Kerharo). P: An extract of the leaves has a hypotensive activity when injected intravenously in dogs. It also prevents asthmaic attacks induced by histamine in guinea pigs (Vincent et al., 1946). A tincture of the leaves produces hypotension, bradycardia and polypnea in the dog, but has no appreciable effect on histamine-induced asthma in guinea pigs. Adansonia flavonoside decreases the capillary permeability in the rabbit, but is less active than rutine (Paris and Moyse-Mignon, 1951). Extracts of the bark have proved ineffective against malaria (Watt).
Med: Dry stem bark ground and mixed with perfumed oil, e.g. "Moono" or "Ilongera", a little cold water added and warm mixture used against skin diseases, e.g. fungus infection; (decoction of roots in combination with roots of Misimisi, Mnyanganyanga, and Mhungulu used as a remedy for miscarriage). Decoction of roots against diarrhoea and abdominal pain. Lit: U: Roots: Decoction of roots for treatment of gonorrhoea (Kokwaro).

Leaves: For treatment of wounds. Mixed with bark and fruits, the mixture pounded and the resulting juice drunk for painful menstruation (Kokwaro).

*Trichodesma zeylanicum* (L.) R. Br. Syn: *Boraginella zeylanica* O. Kuntze, *Boraginoides zeylanica* Hiern, *Borago zeylanica* Burm., *Policia zeylanica* F. Müell., *Trichodesma kotschyanum* Fenzl ex A. DC. TMP: 150. V: Ligalu (Makonde). L: Korogwe district, Kijango village. H: Herb. D: Tropical Africa, S. Asia and Australia. Med: The herb is burnt and the ash used against coughing due to enlarged uvula. Lit: U: Roots: A decoction is used as a diuretic and against rheumatoid arthritis (Kokwaro). Chewed roots or a cold water extract as an antitode for snake bite. Also externally on the bite. A decoction is used against tuberculosis (Kokwaro). Powdered or chewed roots are applied to wounds (Watt). Leaves: As an emollient poultice and to produce diuresis (Watt). Entire aerial parts: Plant parts are pounded, boiled slightly and applied to abscesses. Plant parts are pounded with water and the juice drunk to treat a kind of dry eczema. The juice is also applied externally (Haerdi). C: The seeds contain 1% of the pyrrollizidine alkaloid supinine (O’Kelly and Sargeant, 1961).

**BURSERACEAE**


*Commiphora simmermanii* Engl. Syn: *Commiphora hyimbilensis* Engl., *C. missionis* Chiov., *C. puguenis* Engl. TMP: 145, 280. V: Mnyakun, Idondo, Isume. L: Handeni district, Mboni village, Same district, Hekano village. H: Tree. D: E. Africa. Med: Branches cut into pieces and soaked in cold water. The extract drunk against excessive bleeding during menstruation or after birth. Lit: U: Roots: For snake bite treatment. Decoction drunk for constipation (Kokwaro). The root is an indigestion remedy. A decoction of the root, or the root boiled with butter is used as a fever remedy (Watt). *Leaves*: A cold-water extract is drunk against fever. Leaf stalks are heated in the fire and chewed against toothache (Kokwaro). A cold-water infusion of the leaves is used as a fever remedy. The leaf stalk is used as a toothache remedy (Watt). *Stem bark*: A decoction is used for constipation. The bark, cooked with meat, is used against indigestion, abdominal pain and stomachache. The bark can also be chewed and the juice swallowed (Kokwaro).

**CAESALPINIACEAE**

roots used as a malaria remedy, vermifuge and carminative (Haerdi). The Kijango (Kienyen) village. H: Tree. D: Tropical and S. Africa. Med: A cold-water extract is drunk against bilharzia. Lit: U: Roots: Decoction of the root is held in the mouth for relief of toothache. A decoction is used for treatment of malaria, blackwater fever, diarrhoea and schistosomiasis. A commercial fluid extract has been marketed for treatment of blackwater fever (Watt). Stem bark: Decoction as a malaria remedy (Haerdi). The bark is extracted by boiling with cattle urine and water and the extract used as a purgative (Kokwaro). A decoction is used against diarrhoea and the powdered bark for dressing ulcers (Watt). Fruits: Crushed fruits are used as a fish poison (Haerdi). P: The fluid extract of the root is said to be cardiotonic, diuretic and diaphoretic (Watt).

Cassia afrifistula Brenan var. afrifistula. TMP: 34, 82, 94. V: Muumba-Mumec, Monzoke (Nyamwezi). L: Tanga district, Tongoni Pongweni and Kiomoni villages. H: Tree or shrub. D: E. Africa. Med: Decoction of roots drunk against herna (the extract is red and bitter) and to cure body weakness. Lit: U: Roots: For treatment of colic (Kokwaro). Stem bark: A decoction is used to cure kidney diseases and for pain in the liver (Kokwaro). Leaves: For treatment of colic (Kokwaro).

Cassia didymobotrya Fres. Syn: Cassia naibroensis Aggeler & Musser. TMP: 182, 272. V: Mwinu. L: Lushoto district, Mayo village. H: Shrub. D: Tropical Africa. Med: Roots boiled with roots of Mkumba (Macaranga capensis (Baill.) Sim., TMP 183), Fuiza (Momordica calantha Gilg, TMP 170) and Mhunguma and Mshegeshe (Myrica salicifolia Hochst. ex A. Rich., TMP 178), filtered and the filtrate drunk against mental illness (Kichaa). Decoction of roots against frequent abortions. Lit: U: Roots: A decoction is used as a purgative, as an emetic, as a cure for malarial fever, headache, excess bile and as an antidote for general poisoning (Kokwaro). A decoction of the root is a strong purgative (Watt). Stem bark: An extract is used as a purgative and an emetic (Kokwaro). Leaves: A decoction is drunk in cases of gonorrhoea and for backache in women. It is also used to cure stomach troubles and for bathing in the treatment of measles. Mixed with roots in a decoction against malarial fever, headaches and excess bile (Kokwaro). The leaf is very poisonous to cattle and sheep, causing intense inflammation of the intestinal canal. It causes diarrhoea in the rabbit. It is used as a purgative and anti-malarial and as a fish poison. Drastic doses are said to be abortifacient (Watt). C: The leaf and the root contain anthraquinones (Watt).

Cassia cfr. singueana Del. Syn: Cassia goratensis Fles., C. goratensis Fles. var. flavescens Bak. f., C. goratensis Fles. var. glabra Bak. f., C. singueana Del. var. flavescens (Bak. f.) Brenan, C. singueana Del. var. glabra (Bak. f.) Brenan, C. zanzibarensis Vatke. TMP: 53. V: Mvumba. L: Tanga district, Tongoni village. H: Shrub. D: Tropical Africa except in rain forest regions, the Comoro Islands. Med: The juice from crushed leaves drunk against bronchopneumonia, ("Kichumi"). Lit: U: Roots: To treat wounds, gonorrhoea and for general stomach problems. A decoction also containing Microglossa densiflora is given to children with convulsions (Kokwaro). The root is used to treat venereal diseases (Watt). Leaves: Juice is applied to syphilitic sores which are also treated with powder of the leaves. The juice is drunk against malaria and to treat snake bites (Haerdi). Young leaves are chewed and the sap swallowed to treat stomach-ache, constipation and heartburn (Kokwaro). Fruits: The fruit pulp is used as a galactagogue (Watt).

Tamarindus indica I. TMP: 155. V: Mkewed (Makonde), Mkwaju (Swahili). L: Korogwe district, Kijango village. H: Tree. D: Tropics of the old world. Med: Decoction of roots drunk to stop vomiting. Juice from crushed leaves used to prepare a thin porridge, taken to stop vomiting. Lit: U: Roots: A decoction is used to cure pains of the heart. A decoction prepared together with the roots of Mimosa pigra L. is drunk against hookworm. A decoction prepared together with the root or stem bark of Stereospermum kunthianum Cham. is used against lepra. Also the stem bark can be used in this mixture (Haerdi). Decoction used against cough and fever (Kokwaro). The root is a component of a leprosy remedy (Watt). Stem bark: The decoction is used as a gargle for sore throat (Kokwaro). A powder of the stem bark with the bark of Pilostigma reticulatum and the fruits of Aecia nilotica is used as a haemostat and to heal wounds (Kerharo). A decoction is used as an antihistimatic, against amenorrhoea and as a lotion for wounds and abscesses (Watt). Leaves: The juice is an anti diarrhoeic and is also drunk against heart pains. Also for treatment of hookworm as described above for the root (Haerdi). A decoction of the leaves together with the twigs of Sterculia africana is used against diarrhoea (Kokwaro). Chewed leaves are applied externally to a snake bite. The leaf is purgative, diaphoretic, emollient and an antihelmintic. The decoction is used against fever and as an antitropical. Crushed leaves are applied to wounds and abscesses (Watt). Fruits: The fruit is a laxative and is used to treat fever, lepra and syphilis (Kerharo). The fruit pulp is purgative, diaphoretic, emollient and is also used to treat haemorrhoids. The fruit is used externally as a wound-healer (Watt). Flowers: As a remedy for jaundice, and externally in eye diseases and on ulcers. Also for treatment of intestinal complaints (Watt). C: The bark contains the alkaloid hordenine (Kerharo).

CAPPARIDACEAE

from pounded roots of Mdala, warmed and drunk as an antidote in poisoning, or against tuberculosis. Lit: U: Roots: A decoction of root and stem bark is drunk as an aphrodisiac. Decoction drunk to treat severe abscesses, scrofula and furuncle (Haerdi). Leaves: Pounded leaves are used externally against severe abscesses, scrofula and furuncle. Juice for healing wounds (Haerdi). The pounded leaf is administered with water to feverish cattle. Leaf powder to treat inflamed anus (Watt). Stem bark: A decoction is used to treat inflammation of the connective tissue of the eye (Haerdi).


Celastraceae


Combretaceae


*Combretum cfr. molle* R. Br. ex D. Don. Syn: *Combretum anholense* Bagshawe & Bak. f., *C. deserti* Eng., *C. ferrugineum* A. Rich., *C. gondense* F. Hoffm., *C. guenzi* Sond., *C. guenzi* Sond. subsp. *sppident* (Engl.) Brenan, *C. hoilei* Diels, *C. koboli* Eng. & Diels, *C. microlepidotum* Eng., *C. nyikae* Eng. var. *boehmi* Eng., *C. pettianum* A. Rich., *C. schelei* Eng., *C. splendens* Eng., *C. splendens* Eng. var. *nykay* (Engl.) Eng., *C. tenuisicatum* Eng., *C. trichanther Fresen.,* *C. ulugurense* Eng. & Diels, *C. welwitschii* Eng., & Diels. TMP: 121, 244. V: Mlama. L: Semangube village. H: Tree. D: Wooded grassland of tropical and southern Africa, Yemen. Med: Extract in cold water of roots together with roots of Mgunu (*Combretum cfr. collinum* Fresen., TMP 113) and Mkwambamaji (cf. *Phyllanthus reticulatus* Poir., TMP 114) against diarrhoea (accompanied by mild an anal bleeding). Powdered roots in tea against abdominal pain. Lit: U: Roots: A decoction of this root and the roots of Annona *chryosophyla* Boj. is used as an expectorant. Decoction also containing roots of Securinega *virousa* (Roxb. ex Willd.) Pax et K. Hoffm., *Psorosperum febrifugum* var. *ferrugineum* Keay & Milne-Redhead, and *Premna cfr. senensis* Klotsch is drunk against syphilis. To treat snake bites a mixture of small chips of this root and roots of *Marhamia obtusifolia* (Baker) Sprague and *Vangueria rotundata* Robyns is applied to the bite. Also wounds from poisoned arrows are treated in the same way (Haerdi). Decoction used for hookworm, stomach pains, snake bite, leprosy, fever, dysentery, general body swellings and as an abortifacient (Kokwaro). Decoction used for swelling of the abdomen and in the treatment of abortion and constipation. The powdered decorticated root is used as a wound dressing (Watt). Stem bark: An aqueous suspension is used for gargarising and to drink in the treatment of angina (Kerharo). Decoction of the inner bark used for stomach troubles (Watt). Leaves: Juice mixed with the decoction of roots to treat abortions and as an anti-diarrhoeic (Haerdi). An aqueous extract is used to treat chest complaints, as an anthelmintic and as an inhalant in steam baths. Externally, leaves are used together with roots of *Senecio lyrapaititus* to heal wounds (Kokwaro). Decoction used against dropsy. Dried leaves mixed with food for the same purpose (Kerharo). Fresh leaf or moistened dry leaf used as a dressing. As an antidote for snake bite. An infusion is drunk as an aid in child birth and a hot application applied to the vulva and abdomen. A feverish child is washed with a decoction to reduce temperature. The warm decoction mixed with salts is squeezed over wounds (Watt). Fruit: Used as an aid in child birth in the same way as the leaves (Watt). C: Mollie acid 3β-D-glucoside (a saponin) has been isolated from the leaves and its structure determined (Pegel and Rogers, 1976). P: Extract of various organs has an antitumour activity towards sarcoma 180 (Kerharo).


Terminalia sericea Burch. ex DC. Syn: Terminalia angolensis O. Hoffm., T. anglecensis Ficalho - nom. nud., T. brosijana Engls. & Diels, T. buhu De Wild. & Ledoux, T. fischeri Engls., T. nyassensis Engls., T. sericea DC. var. angolensis Hiern, T. sericea DC. var. huillensis Hiern. TMP: 196. V: Mhungweluwa. L: Handeni district, Chanika village. H: Tree. D: Tropical and south Africa. Med: Decoction of roots against gonorrhoea. Lit: U: Roots: Decoction used to treat bilharzia and for stomach troubles (Kokwaro). To arrest purging. The decoction is given to a cow suffering from protracted parturition or retained placenta. The root is thought to be poisonous (Watt). Stem bark: The powdered bark is taken with mealie meal against diabetes (Watt). Leaves: One or two leaves chewed and the juice swallowed before eating dintwa (edible white ants). This prevents purgative effects of the ant meal (Watt). C: The triterpenoids sericic acid and sericoside are major constituents of the roots and their structures have been determined (Bombardelli et al., 1974). The root also contains a hydroxy-stilbene glycoside (Bombardelli et al., 1975). The gum exudate of the plant has been investigated (Anderson and Bell, 1974). P: Sericic acid and sericiside have antiulcer, anti-inflammatory and cicatrizing activity (Mustich, 1975).

COMMELINACEAE

Commelina zambesiaca C. B. Cl. TMP: 140. V: Kong’ho, Ikongwe (Pare). L: Korogwe district, Mombo village. H: Herb. D: Tropical Africa. Med: To treat “Mchango” (swelling of the body) the patient is covered with a blanket and subjected to the vapours of boiling stems and leaves of the plant.

COMPOSITAE


body, accompanied by fever and sometimes profuse sweating (Kiguma).

Lit: U: For treatment of a diseased eye (Kokwaro). As a gonorrhoea remedy. For suppurations of the skin and elsewhere. To improve the quality of the milk in a lactating woman (Watt). No special part of the plant is mentioned in these references.

**Dichrocephala integrifolia** (L.f.) O. Ktze. Syn: *Cotula bicolor* Roth., *Dichrocephala bicolor* (Roth.) Schlechtend., *D. latifolia* DC., *Hippia integrifolia* Linn., f. TMP: 179. V: Shinda kaya. L: Lushoto district, Mayo village. H: Herb. D: Tropical and subtropical Africa, Asia, southern Europe. Med: Decoction of leaves filtered and drunk against bloody diarrhoea and stomach sores resulting from cuts made to treat headache (Kokwaro). Ground seeds mixed with cows' ghee rubbed on the head to heal swollen testicles. Decoction to treat typhoid (Kokwaro). Leaves: An infusion is used for malaria. It is bitter and acts also as an emetic. Pounded leaves are used to treat limb fractures (Kokwaro). The leaf is used for treatment of fractured limbs. The leaf is applied to the inside of the nose in man and cattle to treat coryza. An infusion of the leaf is taken for fever with headache. The juice of the warmed leaf is used as eye drops and as a ringworm application (Watt). Entire plant: For relief of stomach pains, pain in the head, chest and shoulders with chronic rhinitis and as a remedy for chronic cough with fever, for heartburn, for epilepsy and fits in children, for hookworm, for furunculosis and for impotence. A decoction for yellow fever, blackwater fever and dropsy. As an anthelmintic and as a cough remedy (Watt).


bilenorrhoea (Bouquet, 1969). Decoction used against stomach pain and for bilenorrhoea (Sandberg, 1965). Stem bark: Against bilharzia, sterility and frigidity (Kerharo). Entire plant: As febrifuge, vermifuge against ascaris and for treatment of icterus (Bouquet and Debray, 1974). C: The plant contains the sesquiterpene lactones vernolide and hydroxyvernolide (Ho and Toubiana, 1970; Toubiana, 1969; Toubiana and Gaudemer, 1967). The leaves have given negative tests for alkaloids, quinones, saponins, flavonoids, tannins and steroids (Bouquet and Debray, 1974). On the other hand, Haerdli (1964) reports positive tests for alkaloids and saponins in an extract of the entire plant including the roots. Alkaloids have been found in the root (Kerharo). Patel and Rowson (1964) obtained a positive reaction for cardiac glycosides in roots, leaves and stems. Tests for alkaloids in these plant parts were negative. P: The extract of the plant is hypotensive (Kerharo). The water-soluble part of the ethanol extract of roots, leaves and stems has been negative. P: The extract of the plant is hypotensive (Kerharo). The water-soluble part of the ethanol extract of roots, leaves and stems has been negative. P: The extract of the plant is hypotensive (Kerharo). The water-soluble part of the ethanol extract of roots, leaves and stems has been negative. P: The extract of the plant is hypotensive (Kerharo). The water-soluble part of the ethanol extract of roots, leaves and stems has been negative. P: The extract of the plant is hypotensive (Kerharo). The water-soluble part of the ethanol extract of roots, leaves and stems has been negative. P: The extract of the plant is hypotensive (Kerharo).


Vernonia lasiopus O. Hoffm. Syn: Vernonia albiovulacea De Wild., V. braunii Muechler, V. brownii S. Moore, V. duncicola S. Moore, V. iodocalyx O. Hoffm., V. kaessneri S. Moore, V. ruwenzoriensis S. Moore. TMP: 174, 281. V: Mhasha. L: Lushoto district, Mambo village. H: Shrub. D: Tropical Africa. Med: Decoction of roots with roots of other plants such as Muumbiti, Muhumba, Mkwamba (Securinega uirosu (Roxb. ex Willd.) Pax & K. Hoffm., TMP 105), Mdagha (Trimeria grandiflora (Hochst.) Warb. subsp. tropica (Burk) Sleum., TMP 171), Mtulang’hondo when a woman cannot be pregnant in association with menstrual bleeding. Decoction of roots drunk to purify the milk of lactating women or to produce lactation. Lit: U: Roots: Decoction used to relieve stomach pains and as an aphrodisiac for men (Kokwaro). To facilitate childbirth (Watt). Forsed leaves: Decoction used to treat stomach-ache and as a purgative (Kokwaro). Decoction to treat epilepsy and for abdominal troubles (Watt).


CUCURBITACEAE


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The Pharmacological Effects of a Ligroin Extract of Nutmeg (Myristica fragrans)

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Summary

A ligroin extract of nutmeg (Myristica fragrans) caused a significant increase in the duration of light and deep sleep in the young chicken. The presence of trimyristin tended to increase the effect of the extract. The extract did not contain detectable amounts of myristicin, elemicin, safrole, or eugenol, which either individually or collectively have been suggested to be the active agent of nutmeg.

Whole or ground nutmeg (Myristica fragrans Houtt.) is readily available from a wide variety of sources. The oil of nutmeg (i.e. the steam distillate), while not as available as the spice, is also available to the average consumer from a number of sources (for example, herb stores, etc.). It has been suggested that nutmeg, when consumed in sufficient quantities (about 20 g or 2 - 3 whole nutmegs), acts as an hallucinogen (Truitt et al., 1961; Weil, 1965). However, when consumed in sufficient quantities to obtain psychotropic effect, mild to severe gastrointestinal reactions are frequently reported (Truitt et al., 1961; Weil, 1965). But it has been suggested that the nutmeg, devoid of its volatile oil, may retain the gastrointestinal properties but not the psychotropic properties (Truitt et al., 1961). While nutmeg, its essential oil, and the aromatic constituents of the essential oil (i.e. myristicin, safrole, etc.) have received some attention in the literature (Shulgin et al., 1967; Truitt, 1967; Kalbhen, 1971), there are apparently no reports of the pharmacological effects of the solvent extracts of nutmeg. Since solvent extraction is a relatively simple means of obtaining organic compounds, it is likely that drug experimenters may use this approach to obtain the fraction maximizing the psychotropic effect while minimizing the gastrointestinal effects. We decided to determine the pharmacological effects of the ligroin extract of nutmeg and the residue left after extraction. Since the young chick is relatively susceptible to the effects of oil of nutmeg (Sherry and Burnett, 1978), as well as other hallucinogens (Sherry and Hunter, 1979; Sherry and Koontz, 1979), we obtained the data in this preparation.