

Herbal medicinal teas from South Africa

Tés de hierbas medicinales de Sudáfrica

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Abstract. An investigation of herbal medicinal teas from Western Cape, South Africa was conducted to assess the varieties of herbal teas used to treat various ailments. Each packet of medicinal tea is a blend of carefully selected four or more herbs which are commonly grown in the organic garden in an ancient valley near the southernmost tip of South Africa and some indigenous herbs picked up in the nearby mountains. The teas are specific for the diseased organ/s and also include the herbs to support and strengthen the systems serving the ailing organ/s. The study shows that there are about twenty-one different types of herbal teas, and the packets of 50 g each are sold in South African markets under the trade names of Arthritea, Asthmitea, Constipatea, Detoxtea, Diabetea, Dietea, Energetea, Flootea, Hangovertea, Heartburntea, Hi Lo B P Tea, Indigestea, Kidneytea, Liveritea, Relaxitea, Sleepitea, Slimtea, Tranquillitea, Tummytea, Ulcertea, and Voomatea. They include 28 herbal species belonging to 12 families. The efficacy of herbal teas and use of traditional remedies are held with high esteem in South Africa.

Key words: Common ailments, traditional phytotherapy, South Africa.

Resumen. Se condujo una investigación de té provisto a partir de hierbas medicinales de Western Cape, Sudáfrica, para evaluar las variedades de té en hierbas utilizadas para tratar varias dolencias. Cada paquete de té medicinal es una mezcla de cuatro o más hierbas cuidadosamente seleccionadas que crecen comúnmente en el jardín orgánico de un valle antiguo cerca de la punta más austral de Sudáfrica, y de algunas hierbas nativas recogidas en las montañas cercanas. Cada té es específico para el/los órgano/s enfermo/s y también incluye las hierbas para fortalecer al/los órgano/s enfermo/s. El estudio muestra que hay cerca de 21 tipos diferentes de té de hierbas, y los paquetes de 50 g cada uno se venden en los mercados de Sudáfrica bajo los siguientes nombres comerciales: Arthritea, Asthmitea, Constipatea, Detoxtea, Diabetea, Dietea, Energetea, Flootea, Hangovertea, Heartburntea, Hi Lo B P Tea, Indigestea, Kidneytea, Liveritea, Relaxitea, Sleepitea, Slimtea, Tranquillitea, Tummytea, Ulcertea y Voomatea. Éstos incluyen 28 especies de hierbas pertenecientes a 12 familias. La eficacia de té de hierbas y el uso de remedios tradicionales son muy valorados en Sudáfrica.

Palabras clave: dolencias comunes, fitoterapia tradicional, Sudáfrica.

INTRODUCTION

The use of plants with medical properties is especially meaningful among the indigenous population groups of South Africa. This is because of the great variety of vegetal species that belong to their ecosystems, a fact that increases the number of available resources. The second half of the twentieth century

has seen a gradual loss in the value of plants in therapeutics and, as a consequence, of the interest in the use of plants with medical purposes (Bonet et al., 1992). It is an unfortunate incident that this knowledge on phytomedicine is rapidly being lost with the modernisation of society, especially by the development of road communication, migration of people from villages to cities, and the influx of modern medicine.

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A few vigorous surveys on traditional medicine have been conducted in South Africa. In previous studies, data collected from different districts were presented merely as a list of plants and their uses (Lamla, 1981; Hutchings, 1989; Simon & Lamla, 1991; Bhat & Jacobs, 1995) without any specific emphasis on what ailments they cure. Bolofo & Johnson (1988) took the first initiative when they made an extensive study on 'Isicakathi', a medicinal plant administered as a purge to newly-born infants. In their study, they identified eleven plant species in six districts of Transkei (South Africa) which are known as 'Isicakathi'. Later, another document containing valuable information on children-oriented plant-derived remedies was recorded by Dlisani & Bhat (1999). Their work focused on 20 plant species medicinally used for maternity and child health. The purpose of this study was, therefore, to collect reliable information about the remaining plant species which can be used in traditional medicine in this region of South Africa, before they are completely lost. Much emphasis in this study has been placed on those plant-derived remedies that are used as herbal medicinal teas for the treatment of various ailments.

MATERIALS AND METHODS

Botanical fieldwork was focused on the Western Cape, South Africa. The samples of herbal teas were collected from the farm in the Western Cape where the herbs are cultivated.

Exhaustive field notes were recorded with regard to the usefulness of the herbs following some of the methods of Croom (1983), and Bhat et al. (1990). Approximately two hundred people were interviewed from different parts of the Western Cape. Each group consisted of twenty to thirty literate adults of various age groups. Both males and females took part in the interview. The random interview was focused equally in urban and suburban areas. Commercial names of the packets of herbal teas are provided, which can be easily purchased in the Western Cape markets.

RESULTS

Twenty eight plant species had been reported to date which are used for the preparation of herbal medicinal teas. In our enumeration, medicinal teas are alphabetically arranged and data are presented in the following sequence: botanical name, common names, and information on uses. Each herbal tea packet is produced with a combination of many herbs. As such, many of the herbs are repeated in the different formulae having different concentrations in the mixtures.

Arthritea (For Arthritis and related ailments)

Herb	Common Name	Actions and Uses
<i>Achillea millefolium</i> L. (Asteraceae)	Yarrow	Relaxes peripheral blood vessels, purifies blood
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Stimulates kidney, blood cleanser
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Stimulates circulation
<i>Taraxacum officinale</i> Weber (Asteraceae)	Dandelion	Diuretic, blood cleanser, remineralizer, tonic
<i>Urtica urens</i> L. (Urticaceae)	Stinging nettle	Circulatory stimulant tonic, diuretic, remineralizer

Asthmitea (For Asthma)

Herb	Common Name	Actions and Uses
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant and anti-spasmodic
<i>Marrubium vulgare</i> L. (Lamiaceae)	Horehound	Expectorant and chest infections
<i>Mentha</i> spp. (Lamiaceae)	Mints	Anti spasmodic and relaxes peripheral blood vessels
<i>Plantago dregeana</i> L. (Plantaginaceae)	Plantain	Tonifies mucous membrane, anti catarrh, anti spasmodic
<i>Symphytum officinale</i> L. (Boraginaceae)	Comfrey	Demulcent, expectorant
<i>Urtica urens</i> L. (Urticaceae)	Stinging nettle	Circulatory stimulant, tonic

Constipatea (For Constipation)

Herb	Common Name	Actions and Uses
<i>Cassia</i> spp. (Fabaceae)	Senna	Laxative, cathartic
<i>Foeniculum vulgare</i> Mill. (Apiaceae)	Fennel	Relieves colic, stomach ache
<i>Mentha</i> spp. (Lamiaceae)	Mints	Digestive, tonic, carminative
<i>Sambucus nigra</i> L. (Caprifoliaceae)	Elder	Laxative, alliterative
<i>Taraxacum officinale</i> (L.) Weber (Asteraceae)	Dandelion	Mild laxative

Detoxtea

(For General Detoxification and Purification)

Herb	Common Name	Actions and Uses
<i>Achillea millefolium</i> L. (Asteraceae)	Yarrow	Tonic, purifies blood
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Blood cleanser, tonic, diuretic
<i>Foeniculum vulgare</i> Mill. (Apiaceae)	Fennel	Carminative, anti-inflammatory, circulatory stimulant
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Stimulates circulation
<i>Ruta graveolens</i> L. (Rutaceae)	Rue	Circulatory stimulant, promotes kidney activity to eliminate toxins
<i>Taraxacum officinale</i> (L.) Weber (Asteraceae)	Dandelion	Mild laxative, acts on liver, tonic, Blood purifier, remineralizer
<i>Urtica urens</i> L. (Urticaceae)	Stinging nettle	Circulatory stimulant, tonic, general cleanser, alliterative

Diabetea

(For Diabetes)

Herb	Common Name	Actions and Uses
<i>Achillea millefolium</i> L. (Asteraceae)	Yarrow	Tonic, purifies blood
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Blood cleanser, tonic, diuretic
<i>Salvia</i> spp. (Lamiaceae)	Sages	Tonic, hypoglycemic, antiseptic
<i>Trigonella foenum-graecum</i> L. (Fabaceae)	Fenugreek	Acts on liver, pancreas, cleanser
<i>Taraxacum officinale</i> (L.) Weber (Asteraceae)	Dandelion	Acts on liver, tonic, blood purifier, remineralizer
<i>Thymus vulgare</i> L. (Lamiaceae)	Thyme	Inflammation of liver, antiseptic
<i>Urtica urens</i> L. (Urticaceae)	Stinging nettle	Stimulates liver and gall bladder metabolism, lowers blood sugar level

Dietea

(For Supplement in Dieting)

Herb	Common Name	Actions and Uses
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Blood cleanser, antiseptic, tonic, promotes sweating, diuretic
<i>Foeniculum vulgare</i> Mill. (Apiaceae)	Fennel	Carminative, anti-inflammatory, circulatory stimulant
<i>Medicago sativa</i> L. (Fabaceae)	Alfalfa	Blood cleanser, decreases cholesterol, strengthens digestion, nutritive, relieves fluid retention, tonic, balances body pH
<i>Taraxacum officinale</i> (L.) Weber (Asteraceae)	Dandelion	Acts on liver, tonic, blood purifier, remineralizer gentle laxative
<i>Trigonella foenum-graecum</i> L. (Fabaceae)	Fenugreek	Strong general cleanser
<i>Urtica urens</i> L. (Urticaceae)	Stinging Nettle	Circulatory stimulant, tonic, diuretic, remineralizer, vitamins and minerals

Energetea

(For Energy and Pep)

Herb	Common Name	Actions and Uses
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Hepatic, stimulant
<i>Coriandrum sativum</i> L. (Apiaceae)	Coriander	Stimulant
<i>Mentha</i> spp. (Lamiaceae)	Mints	Tonic, antiseptic
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Stimulates circulation, antidepressive, tonic
<i>Trigonella foenum-graecum</i> L. (Fabaceae)	Fenugreek	Internal cleanser, digestive and nutritive, healing
<i>Urtica urens</i> L. (Urticaceae)	Nettle	Purifies blood, tonic, remineralizer, stimulates liver metabolism

Flootea

(For Coughs, Colds, and Chest Aliments)

Herb	Common Name	Actions and Uses
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Wonderful for soothing coughs and colds
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Antiseptic, tonic, promotes sweating
<i>Marrubium vulgare</i> L. (Lamiaceae)	Horehound	Soothes inflamed surfaces, removes phlegm
<i>Symphytum officinale</i> L. (Boraginaceae)	Comfrey	Acts on membrane, removes phlegm
<i>Ruta graveolens</i> L. (Rutaceae)	Rue	Relaxes muscle tension, acts on coughs
<i>Urtica urens</i> L. (Urticaceae)	Nettle	Tonic, stimulates blood system, high in vitamins A,B,C

Hangoverta

(For Nausea and Dizziness)

Herb	Common Name	Actions and Uses
<i>Achillea millefolium</i> L. (Asteraceae)	Yarrow	Tonic, purifies blood, cholagogue
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Hepatic
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Anti depressive, promotes bile flow, antibiotic
<i>Salvia</i> spp. (Lamiaceae)	Sages	Promotes bile flow, antibiotic
<i>Taraxacum officinale</i> (L.) Weber (Asteraceae)	Dandelion	Liver tonic
<i>Trigonella foenum-graecum</i> L. (Fabaceae)	Fanugreek	Anti inflammatory, cleanser
<i>Urtica urens</i> L. (Urticaceae)	Nettle	General tonic, blood purifier, stimulates gall bladder and liver metabolism

Heartburntea

(For Acidity)

Herb	Common Name	Actions and Uses
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Gastric derangement, stomach ache, colic
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, digestive, colic, carminative
<i>Mentha</i> spp. (Lamiaceae)	Mints	Stomach ache, insecticide, antiseptic
<i>Origanum majorana</i> L. (Lamiaceae)	Sweet marjoram	Digestive, bitter tonic
<i>Plantago officinalis</i> L. (Plantaginaceae)	Plantain	Tonifies mucous membrane
<i>Symphytum officinale</i> L. (Boraginaceae)	Comfrey	Demulcent, ulcers, tonic
<i>Thymus vulgare</i> L. (Lamiaceae)	Thyme	Balsamic, anti bacterial, antiseptic

Hi. Lo. B. P. tea

(For Balancing Blood Pressure and Cleansing)

Herb	Common Name	Actions and Uses
<i>Achillea millefolium</i> L. (Asteraceae)	Yarrow	Relaxes peripheral blood vessels, purifies blood
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Stimulates kidney, blood cleanser
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Stimulates circulation
<i>Taraxacum officinale</i> (L.) Weber (Asteraceae)	Dandelion	Diuretic, blood cleanser, remineralizer, tonic
<i>Urtica urens</i> L. (Urticaceae)	Stinging nettle	Circulatory tonic, diuretic remineralizer

Indigestea
(For Indigestion)

Herb	Common Name	Actions and Uses
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Loss of appetite, stomach ache, dyspepsia, gastric derangements
<i>Foeniculum vulgare</i> Mill. (Apiaceae)	Fennel	inflammatory, circulatory stimulant
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, colic, anti bacterial
<i>Mentha</i> spp. (Lamiaceae)	Mints	Digestive tonic (Lamiaceae), promotes bile flow, stomach ache
<i>Symphytum officinale</i> L. (Boraginaceae)	Comfrey	Demulcent, heals wounds, tonic
<i>Thymus vulgare</i> L. (Lamiaceae)	Thyme	Anti biotic, anti-septic, balsamic, antibacterial

Kidneytea
(For Kidney Related Ailments and Water Retention)

Herb	Common Name	Actions and Uses
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Urinary antiseptic, urinary tract infections, mild diuretic
<i>Ruta graveolens</i> L. (Rutaceae)	Rue	Circulatory stimulant, promotes kidney activity to eliminate toxins
<i>Salvia</i> spp. (Lamiaceae)	Sages	Relaxes peripheral blood vessels, antibiotic
<i>Taraxacum officinale</i> Weber (Asteraceae)	Dandelion	Gentle diuretic, remineralizer

Liveritea
(For Liver Ailments and Sluggishness)

Herb	Common Name	Actions and Uses
<i>Avena sativa</i> L. (Poaceae)	Oats	Anti-depressant, nerve tonic
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, nervous tonic
<i>Nepeta cataria</i> L. (Lamiaceae)	Catmint, Catnip	Relaxant
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Dandelion	Gentle diuretic, remineralizer
<i>Verbena officinalis</i> L. (Verbenaceae)	Vervain	Relaxant in nervous exhaustion

Relaxitea
(For Tension and Stress)

Herb	Common Name	Actions and Uses
<i>Avena sativa</i> L. (Poaceae)	Oats	Anti-depressant, nerve tonic
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, nervous tonic
<i>Nepeta cataria</i> L. (Lamiaceae)	Catmint, Catnip	Relaxant
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Gentle diuretic, remineralizer
<i>Verbena officinalis</i> L. (Verbenaceae)	Vervain	Relaxant in nervous exhaustion

Sleepitea
(For Insomnia)

Herb	Common Name	Actions and Uses
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, antispasmodic, promotes sleep
<i>Melissa officinalis</i> L. (Lamiaceae)	Lemon balm	Antispasmodic, anti hysteric
<i>Nepeta cataria</i> L. (Lamiaceae)	Catmint, Catnip	Relaxant
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Soothing effect on the central nervous system
<i>Verbena officinalis</i> L. (Verbenaceae)	Vervain	Relaxant, relieves aches and pain

Slimtea
(Helps lose Weight)

Herb	Common Name	Actions and Uses
<i>Achillea millefolium</i> L. (Asteraceae)	Yarrow	Purifies blood, tonic
<i>Barosma betulina</i> Bartl. & Weidl. (Rutaceae)	Buchu	Mild diuretic, blood cleanser
<i>Foeniculum vulgare</i> Mill. (Apiaceae)	Fennel	Stomach ache, circulatory stimulant
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Stimulates circulation
<i>Taraxacum officinale</i> Weber (Asteraceae)	Dandelion	Mild laxative, promotes liver metabolism, blood cleanser
<i>Trigonella foenum-graecum</i> L. (Fabaceae)	Fanugreek	Promotes spleen metabolism, acts on pancreas and liver
<i>Urtica urens</i> L. (Urticaceae)	Nettle	Stimulates liver metabolism, lowers blood sugar levels, nutritive

Tranquillitea

(For General Sense of Serenity)

Herb	Common Name	Actions and Uses
<i>Avena sativa</i> L. (Poaceae)	Oats	Relaxant, nerve strengthener
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, colic, antibacterial
<i>Mentha</i> spp. (Lamiaceae)	Mints	Digestive tonic, promotes bile flow, stomach ache
<i>Nepeta cataria</i> L. (Lamiaceae)	Catmint, Catnip	Relaxant
<i>Pelargonium graveolens</i> L.'Her' ex Aiton (Geraniaceae)	Rose geranium	Settle nerves
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Soothing effect on the central nervous system

Tummytea

(For Upset Stomach, Indigestion and Stomach Pain)

Herb	Common Name	Actions and Uses
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Loss of appetite, stomach ache, dyspepsia, gastric derangement
<i>Foeniculum vulgare</i> Mill. (Apiaceae)	Fennel	Carminative, anti-inflammatory, circulatory stimulant
<i>Lavandula</i> spp. (Lamiaceae)	Lavender	Relaxant, colic, antibacterial
<i>Mentha</i> spp. (Lamiaceae)	Mints	Digestive tonic, promotes bile flow, stomach ache
<i>Symphytum officinale</i> L. (Boraginaceae)	Comfrey	Demulcent, heals internal wounds, tonic

Ulcertea

(For Internal Ulcers)

Herb	Common Name	Actions and Uses
<i>Mentha</i> spp. (Lamiaceae)	Mints	Antiseptic, digestive tonic, stomach ache
<i>Plantago</i> spp. (Plantaginaceae)	Plantain	Tonifies mucous membrane
<i>Symphytum officinale</i> L. (Boraginaceae)	Comfrey	Demulcent, promotes healing of internal ulcers, tonic
<i>Thymus vulgare</i> L. (Lamiaceae)	Thyme	Anti biotic, anti-septic
<i>Urtica urens</i> L. (Urticaceae)	Nettle	Tonic, nutritive, alterative

Voomatea

(For Stimulation and Tonic)

Herb	Common Name	Actions and Uses
<i>Artemisia afra</i> Jacq. ex Willd. (Asteraceae)	Wild als	Hepatic, stimulant
<i>Coriandrum sativum</i> L. (Apiaceae)	Coriander	Stimulant
<i>Mentha</i> spp. (Lamiaceae)	Mints	Tonic, antiseptic
<i>Rosmarinus officinalis</i> L. (Lamiaceae)	Rosemary	Stimulates circulation, antidepressive, tonic
<i>Trigonella foenum-graecum</i> L. (Boraginaceae)	Fenugreek	Internal cleanser, digestive and nutritive, healing
<i>Urtica urens</i> L. (Urticaceae)	Nettle	Purifies blood, tonic, remineralizer, stimulates liver metabolism

DISCUSSION AND CONCLUSION

Ethnobotanical work is intended to bring light to the traditional knowledge about plant use and its cultural significance. This could contribute to (1) better ways of renewable natural resource utilization, (2) propose medicinal plant management according to the anthropological needs and characters of the human groups over whom they are planned to intercede (Zamora-Martinez & De Pascual Pola, 1992). The plant kingdom represents a source of food and medicine. Therefore, with the tendency in modern medicine to assimilate and re-assimilate natural remedies in common practice, under various forms, the potential of regional flora becomes very important (De Feo et al., 1992). In the Western Cape of South Africa there are approximately twenty-one herbal teas prepared from twenty eight plant species belonging to twelve families. Approximately 35% of the species belong to the family Lamiaceae. Packets of 50 g each are sold in South African markets, mainly in the Western Cape. No adverse statements have been reported for the herbal teas. Further scientific and experimental research is required to have a better understanding of these herbal teas.

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REFERENCES

- Bhat, R.B., E.O. Etejere & V.T. Oladipo (1990). Ethnobotanical studies from central Nigeria. *Economic Botany* 44: 382-390.
- Bhat, R.B. & T.V. Jacobs (1995). Traditional herbal medicine in Transkei. *Journal of Ethnopharmacology* 48: 7-12.
- Bolofo, R.N. & C.T. Johnson (1988). The identification of "Isicakathi" and its medicinal use in Transkei. *Bothalia* 18: 125-130.
- Bonet, M.A., C. Blanche & J.V. Xiran (1992). Ethnobotanical study in the River Tenes valley (Catalonia, Iberian Peninsula). *Journal of Ethnopharmacology* 37: 205-212.
- Croom, E. M. (1983). Documenting and evaluating herbal remedies. *Economic Botany* 37: 13-27.
- De Feo, V., R. Aquino, A. Menghini, E. Ramundo & F. Senatore (1992). Traditional phytotherapy in the Peninsula Sorrentina, Campania, Southern Italy. *Journal of Ethnopharmacology* 36: 113-125.
- Dlisani, P.B. & R.B. Bhat (1999). Traditional Health Practises in Transkei with special emphasis on Maternal and Child Health. *Pharmaceutical Biology* 37: 32-36.
- Lamla, M. (1981). Traditional Healers and Their Medicine. Lumko occasional Paper 2. Cacadu, Transkei, 59 pp.
- Hutchings, A. (1989). Observations on plant usage in Xhosa and Zulu medicine. *Bothalia* 19: 225-235.
- Simon, C. & M. Lamla (1991). Merging pharmacopoeia: understanding the historical origins of incorporative pharmacopoeial process among Xhosa healers in southern Africa. *Journal of Ethnopharmacology* 33: 237-242.
- Zamora-Martinez, M.C. & C.N. De Pascual Pola (1992). Medicinal plants used in some rural populations of Oaxaca, Puebla, and Veracruz, Mexico. *Journal of Ethnopharmacology* 35: 229-257.