Medicinal uses of plants from Guinea-Bissau

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Abstract
Plants used by traditional Fulani healers to treat infectious diseases were revealed by an ethnopharmacological inquiry conducted in the Contúboel Sector of Guinea-Bissau. Data were collected on thirty species, including local plant names, parts of the plant used, plus formula, preparation and methods of administering various remedies. The plant extracts were screened for antibiotic activity. The screening results confirmed that most of the tested plant extracts exhibited antibiotic activity, especially *Terminalia macroptera* (Combretaceae) and *Cryptolepis sanguinolenta* (Asclepiadaceae) both of which presented interesting profiles of antibacterial activity, mainly against some of the more important etiologic agents of gastro-enteritis.

Résumé
Une enquête a été conduite dans quelques petites villages du Secteur de Contúboel en Guiné-Bissau sur des plantes utilisées dans la médecine traditionnelle, pour soigner des maladies infectieuses. Une trentaine d'espèces a été identifiée et des renseignements ont été recueillis chez des guérisseurs de l'ethnie Peul sur les recettes utilisées par eux. D'après ces données, des extraits de drogues ont été soumis à des essais de l'activité antibactérienne. Les résultats obtenus, surtout ceux qui concernent l'activité de *Terminalia macroptera* et de *Cryptolepis sanguinolenta* sur des organismes responsables pour des diarrhées d'origine infectieuse, sont très encourageants et sont susceptibles d'encourager des travaux en vue de la préparation de médicaments locaux.

Key words
Cryptolepis sanguinolenta, Guinea-Bissau, Medicinal plants, *Terminalia macroptera*.

Introduction
In February 1991 an ethnopharmacological project was initiated in Contúboel Sector, with local support from the Agricultural Research Department (DEPA) (Gomes & Diniz 1993). Data were collected on local remedies used to treat several infectious diseases and on some other drugs sold in the Bissau market of Bandim (dried roots and leaves of *Terminalia macroptera* Guill. & Perr. and dried roots of *Cryptolepis sanguinolenta* Schltr.). In all, about thirty plant species were identified. Ethanol extracts of the associated drugs were tested on several bacterial species and most of them showed some antimicrobial activity. Further studies on the chemical composition and antibiotic activities of two of the more frequently used species are very promising.

Geographical position
Guinea-Bissau, formerly (before 1974) Portuguese Guinea, is a west African coastal nation (area: 36,000 km^2), bounded by Senegal on the north and the Republic of Guinea (Conakry) on the east and southeast. The country is largely flat and low-lying (< 40 meters); the highest elevation is in the south-eastern Boé region, on an outlier

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of Fouta Djallon plateau. The Contúboel Sector, in the northeastern region, is far from Bissau, the capital (180 km), and near to the border of Senegal.

Climate

The climate is warm and damp. There are two six-month seasons: the wet and warmer one starts in May and lasts to the end of October; the dry and cooler lasts from November until May. Rainfall decreases from the south-east to the north.

Flora

Due to human interference, climate, diverse soil and hydric regimes, a great diversity of vegetation types is found in Guinea-Bissau. Knowledge of some previous studies (Carvalho et al. 1956, Espírito Santo 1949, White 1983) and our own field work confirm that the vegetation of the Contúboel Sector shows features of transition between the Sahel-Sudanian regional zone and the Guinea-Congolian regional zone. The characteristic species of the main vegetation types of the mosaic in the Contúboel Sector are as follows:

* Dry woodlands: characterised by *Daniellia oliveri* (Rolfe) Hutch. & Dalz., *Khaya senegalensis* (Desr.) Adr. Juss., *Pterocarpus erinaceus* Poir., *Piliostigma thonningii* (Schum.) Milne-Redhead, *Combretum* spp., *Terminalia macroptera* Guill. & Perr., *Bombax costatum* Pellegr. & Vuillet, *Dichrostachys cinerea* (L.) Wight & Arn. and *Erythrina senegalensis* DC.
* Woody grasslands with trees or shrubs: mainly represented by andropogonoid grasses with scattered trees and shrubs of *Dichrostachys cinerea, Terminalia macroptera, Guiera senegalensis* Lam., *Combretum* spp., *Parkia biglobosa* (Jacq.) R.Br. ex Benth. and *Bombax costatum*.
* Gallery forests: chiefly represented by *Mitragyna ciliata* Aubrév. & Pellegr., *Morinda geminata* DC, *Sarcocephalus latifolius* (Smith) Bruce, *Holarrhena floribunda* (G. Don) Dur. & Schinz., *Parinari excelsa* Sabine and *Syzygium guineense* Jacq.
* Palm forest: characterised mainly by the occurrence of *Elaeis guineensis* Jacq. and *Anthocleista nobilis* G. Don.

Contúboel traditional medicine

Methods

Access to medical care, even in the main local hospitals we visited, was very limited and, at the time, there were no western pharmaceutical products available either in the hospitals or in the health care centres of Contúboel Sector.

Our contact with five traditional healers was organized by DEPA (Bissau and Contúboel) with the acceptance of the healers. Four male Fulani healers (Muslim religion) and one female healer of the Mandyako tribal group were interviewed on the main traditional remedies used in anti-infection therapy. The bark, root, leaf and plant aerial parts used in the remedies were collected by them for our analysis.

Results

Thirty species were identified (Table 1), from about twenty-two traditional recipes. Voucher specimens are deposited in the herbarium of the Centro de Botânica (LISC),

at the Instituto de Investigação Ciêntifica Tropical (IICT), Lisbon, Portugal. Most of the traditional drugs made from the species are used to treat swellings, rheumatic disorders, wounds, purulent sores and veneral diseases. Data on the traditional recipes are published in Gomes & Diniz (1993). Two of the species are most promising and some additional information on them is provided below:

* *Cryptolepis sanguinolenta* - Dried root doses and bottled water macerates are sold in Bissau's Bandim market for the treatment of hepatitis and jaundice. Traditional recipe: small root fragment macerates are bottled with water, under sunlight and overnight, for 24 hours. A small cup is taken every morning during the treatment (till disappearance of jaundice symptoms). *Cryptolepis sanguinolenta* root extract is active against all but one of the tested bacteria. Both the ethanolic extract and the main indolic alkaloid cryptolepine show a very interesting profile of antibiotic activity against *Campylobacter* and *Vibrio cholerae* infective strains (Paulo et al. 1994).

* *Terminalia macroptera* - Decorticated dried root doses, bottled water macerates, and infusions are sold in Bissau's Bandim market. Traditional recipe: small pieces of dried and decorticated roots are boiled in water (for one or two hours), salt and cotton filtrate are added. The treatment of venereal disease is made by the oral administration of a glass of this extract, till the symptoms are cured. *Terminalia macroptera* root extract and the major water-soluble compounds (flavone derivatives) show anti-microbial activity against *Shigella dysenteriae*, *Vibrio cholerae*, *Vibrio para-haemoliticus* and *Staphylococcus aureus* (O. Silva, personal communication 1993).

Conclusion

Our present knowledge about the drugs used as anti-infective agents in Guinea Bissau (Contúboel) traditional medicine indicates that, after agricultural research projects on cultivation of the main useful species, development programs to enhance the preparation of local pharmaceutical formulae may be important to the progress of African countries with limited western health care resources.

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References

Carvalho J.A. de & S.J.S.F.P. Nunes, 1956. Contribuição para o Estudo do Problema Florestal da Guiné-Bissau. Estudos, Ensaios e Documentos, Junta Invest. Ultramar (Lisboa) 30: 194.

Espírito Santo, J.V. do, 1949. Contribuição para o conhecimento fitogeográfico da Guiné Portuguesa. Boletim Cultural da Guiné Portuguesa (Bissau) vol. IV. 13: 95-129.

Gomes, E.T. & M.A. Diniz, 1993. Plantas usadas na medicina tradicional na região de Contúboel Comun. IICT, Sér. Ciênc. agrárias 13: 153-165.

Paulo, A., M. Pimentel, S. Viegas, I. Pires, A. Duarte, J. Cabrita & E.T. Gomes, 1994. *Cryptolepis sanguinolenta* activity against diarrhoeal bacteria. J. of Ethnopharmacology, in press.

White, F., 1983. The Vegetation of Africa. UNESCO, Paris.

Table 1. Scientific names, Fulani names, plant parts and medicinal uses of twenty-one species.

Family/Species	Fulani name	Plant part	Uses
Annonaceae			
Uvaria chamae P. Beauv.	Sambafim-ô	Roots	Rheumatic diseases (Rd)
Apocynaceae			
Holarrhena floribunda (G. Don) Dur. & Schinz	Tchoraquidje	Bark	Anthelmintic
Asclepiadaceae			
Calotropis procera Ait.	Pama	Roots	Rheumatic diseases
Cryptolepis sanguinolenta Schltr.	Cuntésse	Roots	Jaundice, Hepatitis
Leptadenia hastata Decne.	Safarodje	Whole plant	Venereal diseases
Bombacaceae			
Adansonia digitata L.	Bóè	Roots	Urinary diseases
Cochlospermaceae			
Cochlospermum tinctorium A. Rich.	Djánderè	Rhizome	Jaundice, Hepatitis
Combretaceae			
Guiera senegalensis Lam.	Gélode	Whole plant	Vd, Tuberculosis
Terminalia macroptera Guill. & Perr.	Bóde	Roots	Vd, Hepatitis
Convolvulaceae			
Merremia kentrocaulos (Steud. ex. C.B. Clarke) Rendle var. *kentrocaulos*	Djon-musudjulo	Rhizome	Rheumatic diseases
Euphorbiaceae			
Hymenocardia acida Tul.	Coron-condé	Leaves	Wounds
Leg.-Caesalpinioideae			
Cassia sieberiana DC.	Sambasintchandje	Roots	Rheumatic diseases
Chamaecrista nigricans Vahl ex DC.	Bara-bubel	Whole plant	Wounds
Entada africana Guill. & Perr.	Padapar	Stem bark, roots	Wounds
Senna podocarpa Guill. & Perr.	Corotalindin	Leaves, roots	Laxative, Vd

Table 1. (Continued).

Family/Species	Fulani name	Plant part	Uses
Leg.- Mimosoideae			
Dichrostachys cinerea Wight & Arn.	Búrlè	Stem bark	Rheumatic diseases
Parkia biglobosa (Jacq.) Benth.	Neré	Stem bark	Anti-inflamatory
Prosopis africana (Guill. & Perr.) Taub.	Tchelem-tchelenadje	Stem bark	Anti-inflamatory
Leg.- Papilionoideae			
Erythrina senegalensis DC.	Botchochei	Roots	Rheumatic diseases
Erythrina sigmoidea Hua	Dolimbai	Roots	Vd, Diuretic
Piliostigma thonningii (Schum.)Milne-Redhead	Barquedje	Leaves, Stem bark	Wounds
Loganiaceae			
Strychnos spinosa Lam.	Saraculedje	Roots	Rheumatic diseases
Olacaceae			
Ximenia americana L.	Tcheme	Stem bark	Analgesic
Palmae			
Elaeis guineensis Jacq.	Tem-em-eih	Roots	Veneral diseases (VD)
Polygalaceae			
Securidaca longepedunculata Fresen.	Djúrô	Roots	Wounds
Rubiaceae			
Gardenia ternifolia Schumach. & Thonn. subsp. *jovis tonantis* (Welw.) Verdc. var. *goetzei* (Stapf & Hutch.)	Dignale	Roots	Analgesic
Morinda geminata DC.	Bacuré	Leaves, Roots	Rd, Hepatitis
Pavetta oblongifolia (Hiern) Bremek.	Cuncandjor	Whole plant	Urinary infections
Sarcocephalus latifolius (Smith) Bruce	Náudò-putcho	Roots	Rd, Venereal diseases
Verbenaceae			
Lippia chevalieri Moldenke	Ussum-coloma	Roots	Paludism, Antipyretic