A CIÊNCIA ETNOBOTÂNICA

Eliana Rodrigues

Centro de Estudos Etnobotânicos e Etnofarmacológicos
Universidade Federal de São Paulo

ETNOBOTÂNICA

SE OCUPA DO ESTUDO DA RELAÇÃO

CULTURAS ⇄ PLANTAS

BORRACHA E RESINAS

FIBRAS

BEBIDAS SOCIAIS

CONSTRUÇÃO NAVAL

MEDICINAIS

COSMÉTICOS

CORANTES

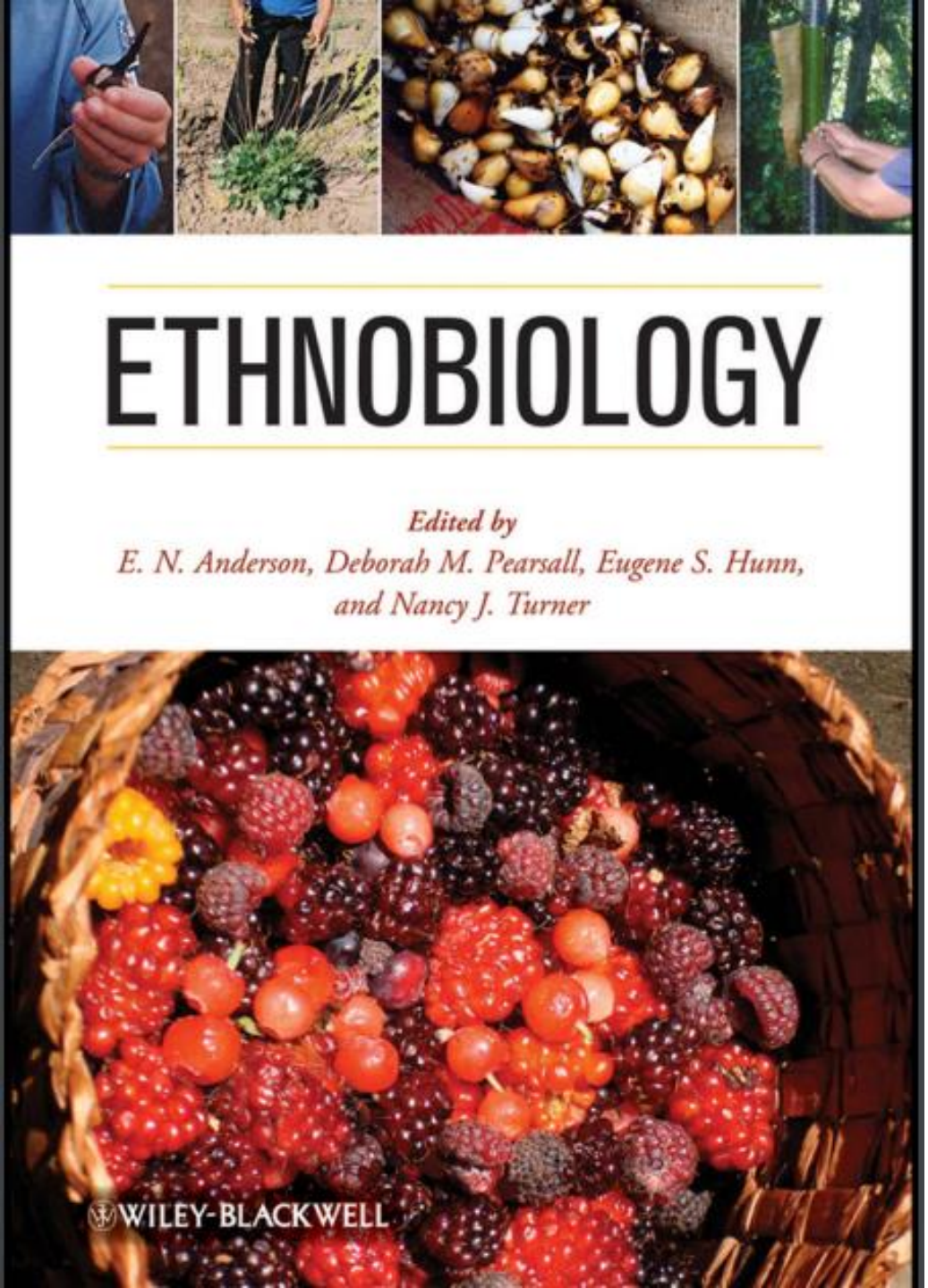
CONSTRUÇÃO CIVIL

ÓLEOS E CERAS

ARTESANATOS

COMBUSTÍVEIS

ALIMENTARES



Chapter 9:

Ethnobotany: The Study of People-Plant Relationships

Nolan & Turner, 2011

Table 9.1 Examples of Some Contemporary Ethnobotanical Research

Topic within ethnobotany	Notes on topic	Some example references
Paleoethnobotany	Ethnobotany of past cultures, including traditional management systems for plant resources	Ford 1978, 1985; Fritz 2005; Lepofsky et al. 2003; Minnis 1991; Minnis and Elisens 2000; Peacock 1998; Pearsall 2001
Historical ecology	Understanding people–plant relationships through time and space	Balée 1998; Ellen 2006; Minnis and Elisens 2000
Nutritional ethnobotany and foodways	Identification and description of nutritional components of native plants in human diet and medicine	Anderson 2005a; Etkin 2006; Johns 1996; Pieroni and Price 2006
Medical ethnobotany	Assessing bioactivity of medicinal plant compounds; designating the cross-cultural applications and significance of botanical families	Etkin 1990; Moerman 1991, 1996; Quinlan 2004; Quinlan et al. 2002; Stepp 2004
Ethnobotanical classification systems	Discovering universal systems of naming and categorizing living things; calibrating folk and scientific thought	Berlin 1992; Brown 1984; Hunn 1982, 1990

(*Continued*)

Nolan & Turner, 2011

Table 9.1 (*Continued*)

Topic within ethnobotany	Notes on topic	Some example references
Cognitive ethnobotany	Studying distribution and forms of plant knowledge, learning styles, knowledge transmission	Ingold 2004; Nolan 2002, 2007; Sanga and Ortalli 2004; Zarger and Stepp 2004
Symbolic ethnobotany	Examines plants through ritual in folkloristics and ceremonial healing	Quave and Pieroni 2007; Vildarich 2007
Sensory and perceptual ecology	Focuses on human sensory recognition of plants and perceptual distinctiveness	Alcorn 1994, 1995; Boster 1985; Casagrande 2004; Jernigan 2006
Quantitative and experimental ethnobotany	Measuring biodiversity within geographic regions, applying multivariate statistics to assess the use potential of botanical families, genera, and species	Anderson 1993a,b; Martin 1995; Prance et al. 1987; Stepp et al. 2005; Ticktin et al. 2002
Intellectual property rights	Negotiation of legal rights pertaining to Indigenous botanical wisdom, building equitable partnerships	Brush 1996; Moran et al. 2001
Evolutionary ecology	Demonstrates how ethnobotanical knowledge relates to human cognitive development, adaptation, and survival through time and space	Atran et al. 2004; Ellen 2006; Mithen 2006
Interpretive ethnobotany and traditional ecological knowledge	Emphasizes traditional wisdom and philosophies, highlights Indigenous teachings and narratives regarding native plant sustainability	Turner 2006, 2008
Ethnobotany and agrodiversity	Investigating germplasm conservation; implementing "seed banking" of local cultivars to propagate variation and choice in regional cultures	Balick 1996; Brush 2004; Campbell 2005; Nazarea 1999; Veteto and Skarbø 2009
Traditional agricultural systems	Interprets traditional cultivation strategies for selected cultivars, shifting subsistence practices, adaptations to seasonal stress	Estabrook 1998; Nabhan 1989
Ethnobotany and conservation	Identifying and safeguarding biota in accordance with Indigenous priorities	Cunningham 2001; Minnis 2000; Rea 1997
Political ecology	Examines local access to plant resources, institutional policies, dimensions of management and control, grassroots activism	Anderson 2000; Nabhan 2002
Historic migrations and ethnobotany	Analyzes how human movements relate to ethnobotanical cultural memory of economic botany	Pieroni and Vanderbroek 2007; Ramirez-Sosa 2009

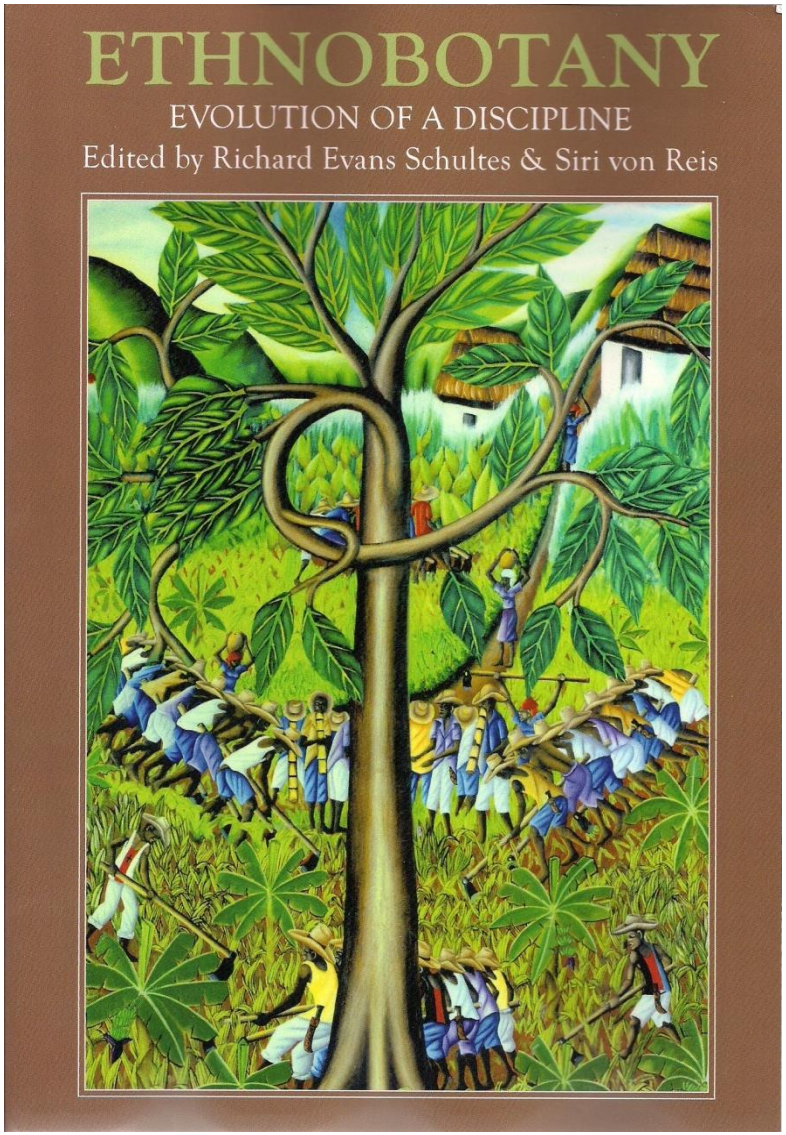
Nolan & Turner, 2011

O QUE É ETNOBOTÂNICA HJ ?

O que as pessoas pensam sobre as plantas?

Como as pessoas diferenciam e classificam as plantas?

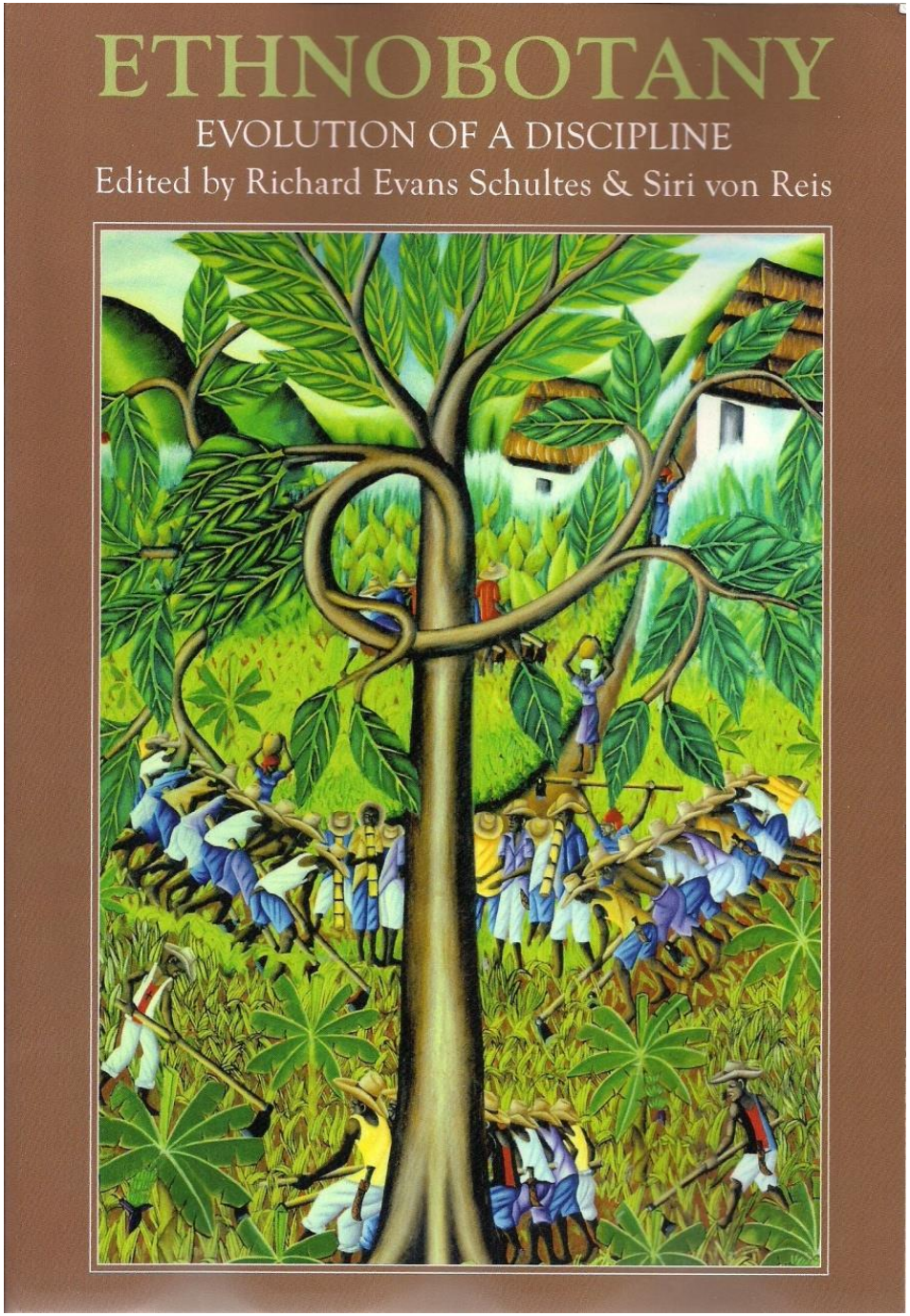
Quais e por que certas plantas estão disponíveis?



De quais regiões as plantas são extraídas?

Como as atividades humanas e suas conseqüências influenciam na evolução das populações de plantas locais?

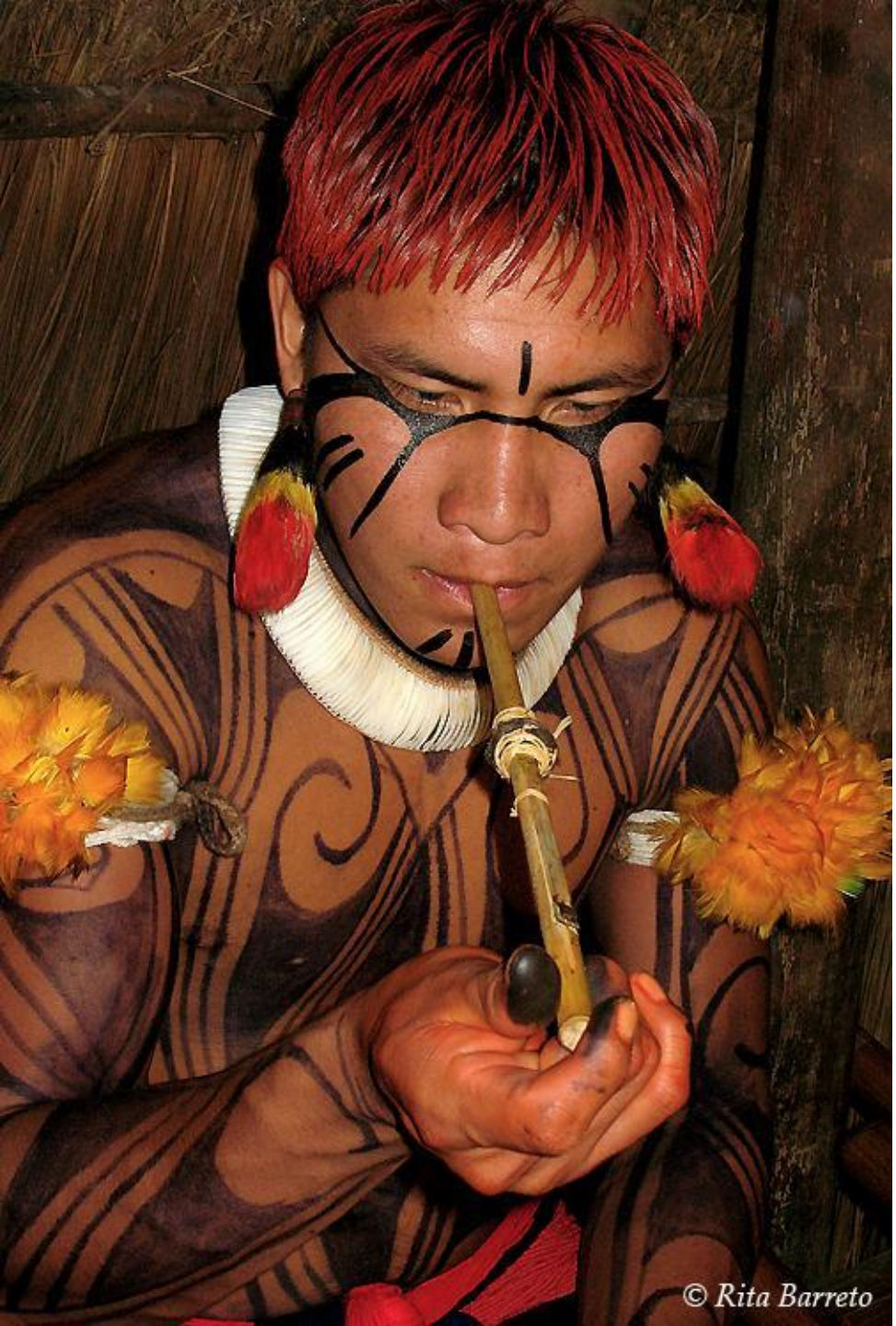
Que efeito seus manejos têm na estrutura da vegetação local?



Seu constante crescimento promoveu a formação de outras disciplinas:

PARA ALÉM DAS PLANTAS…..

Etnofarmacologia
Etnomicologia
Etnobotânica e Conservação
Etnobotânica e Literatura Antiga
Etnobiologia
Arqueoetnobotânica/Paleoetnobotânica
Etnotaxonomia
Etnoveterinária
Outras….



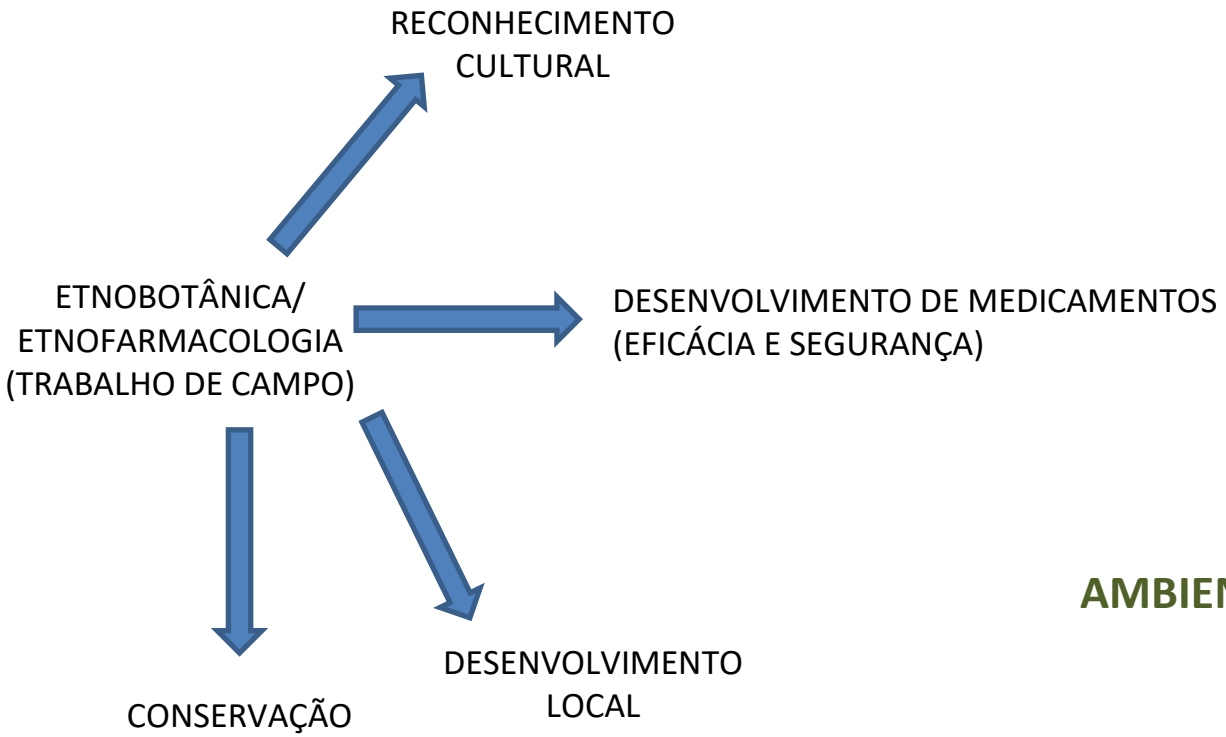
ETNOFARMACOLOGIA

SUBÁREA DA ETNOBOTÂNICA

SE OCUPA DO ENTENDIMENTO E REGISTRO DAS SUBSTÂNCIAS UTILIZADAS POR DIFERENTES CULTURAS, geralmente em CONTEXTOS RITUAIS

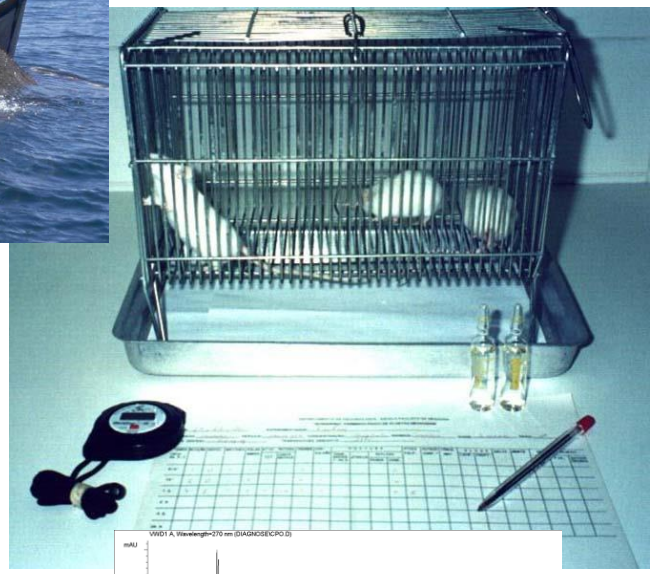
NÃO TEM BANCADA!
não se trata de validar a ciência da outra cultura.

APLICAÇÕES



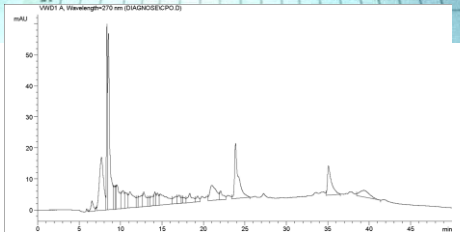
AMBIENTE RURAL E URBANO

Estudo Etnofarmacológico → *estudos de farmacologia e fitoquímica* → *desenvolvimento de medicamentos*



ERVA-BALEEIRA

Cordia curassavica (Jacq.) Roem. & Schult. [Boraginaceae]



Economia de Tempo
Economia de Dinheiro
Economia de Energia

INTERAÇÕES

Secreção do sapo +
resina de árvore

Saliva da vespa +
sedimento + óleo vegetal

Métodos Antropologia Cultural

OBSERVAÇÃO PARTICIPANTE

DIÁRIO DE CAMPO

ENTREVISTAS

Entrevistas (xamã, curador, rezador, parteira,....)

MÉTODOS DA BOTÂNICA E ZOOLOGIA

DEPÓSITOS EM HERBÁRIOS E MUSEUS

COLETA DE ANIMAIS

COLETA DE PLANTAS

COLETA DE FUNGOS

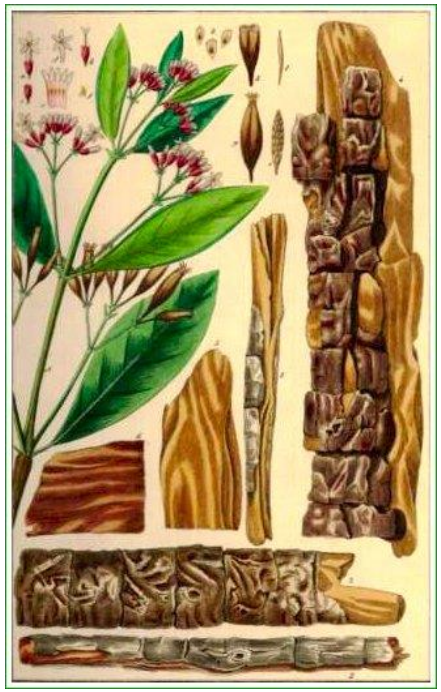
EXEMPLO DE MEDICAMENTOS DERIVADOS DESSA CIÊNCIA

***Digitalis purpurea* L.**
Plantaginaceae

dedaleira

digoxina e digitoxina

Cinchona officinalis
Rubiaceae
Cinchona, quina



quinina e outros alcalóides (cloroquinina, atabrina, primaquina)

Salix sp.
Salicaceae
Salgueiro, chorão

Ácido salicílico - Ácido acetilsalicílico (aspirina)

***Papaver somniferum* L.**
Papaveraceae
papoula

morfina

A FARMACOLOGIA TEM FERRAMENTAS PARA "VALIDAR" A ETNOFARMACOLOGIA

?

?

FUMO
TIRA
CAPETA

NEM SEMPRE A FARMACOLOGIA TEM FERRAMENTAS PARA “VALIDAR” A ETNOFARMACOLOGIA

UNIFESP
UNIVERSIDADE FEDERAL DE SÃO PAULO
1933

….Desde 2006

Doutorado (5)
Pós-Doutorado (2)
Mestrado (18)
Iniciação científica (25)
Artigos (63)
Capítulos de livro (13)
Auxílios à Pesquisa FAPESP (7)
Auxílio Universal (1)
Outros auxílios (10)

CEE
CENTRO DE ESTUDOS ETNOBOTÂNICOS E ETNOFARMACOLÓGICOS

14 anos

Colaborações

botânico, zoólogo, farmacólogo, químico, agrônomo, antropólogo, geólogo, microbiologista, veterinário, primatólogo e médicos.

(UNIFESP, USP, UNESP, UNITAU, UNICAMP, ADOLFO LUTZ, Jardim Botânico do RJ e de SP, Universidade do Hawai, Universidade de Kyoto, Universidade de Auckland)

www.cee.sites.unifesp.br

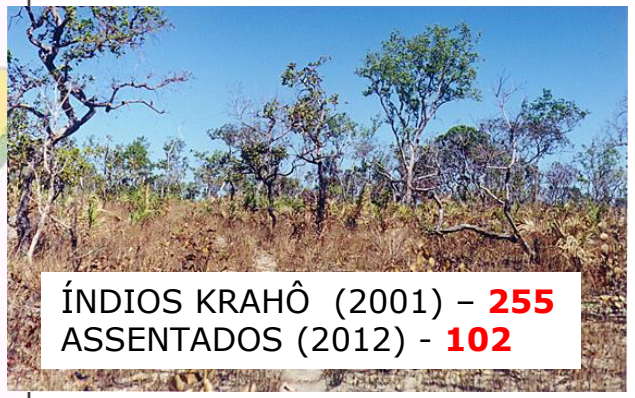
15 ESTUDOS REALIZADOS NO CEE ENTRE 1995-2020

CABOCLOS – RIO JAÚ (1995) - **120**
CABOCLOS - RIO UNINI (2012) - **122**

1208 PLANTAS
106 ANIMAIS
1 FUNGO

SERTANEJOS (2007) - **35**

Grande
isolamento geográfico

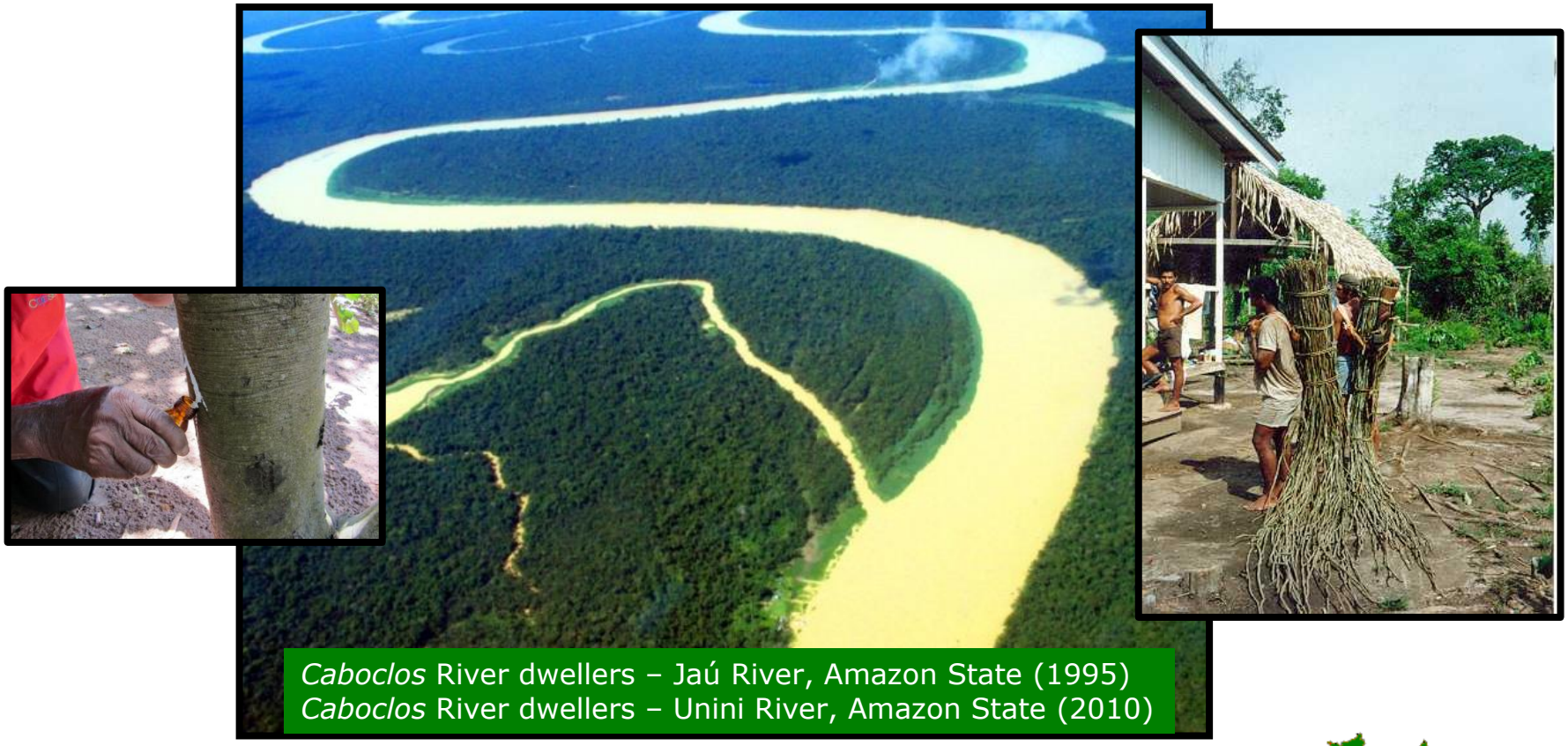


ÍNDIOS KRAHÔ (2001) – **255**
ASSENTADOS (2012) - **102**

AFRO-DESCENDENTES (2001) - **85**

MIGRANTES P. BORORÉ (2007) **- 98**
MIGRANTES DIADEMA (2008) – **85**
UMBANDA DIADEMA - **27**
COMERCIANTES DIADEMA (2009) **– 63**
QUILOMBOLAS, UBATUBA (2017) **- 216**

Ethnopharmacological and Ethnobotanical surveys developed by CEE's researchers among the *caboclos* river dwellers living in the Amazon forest biome (year)

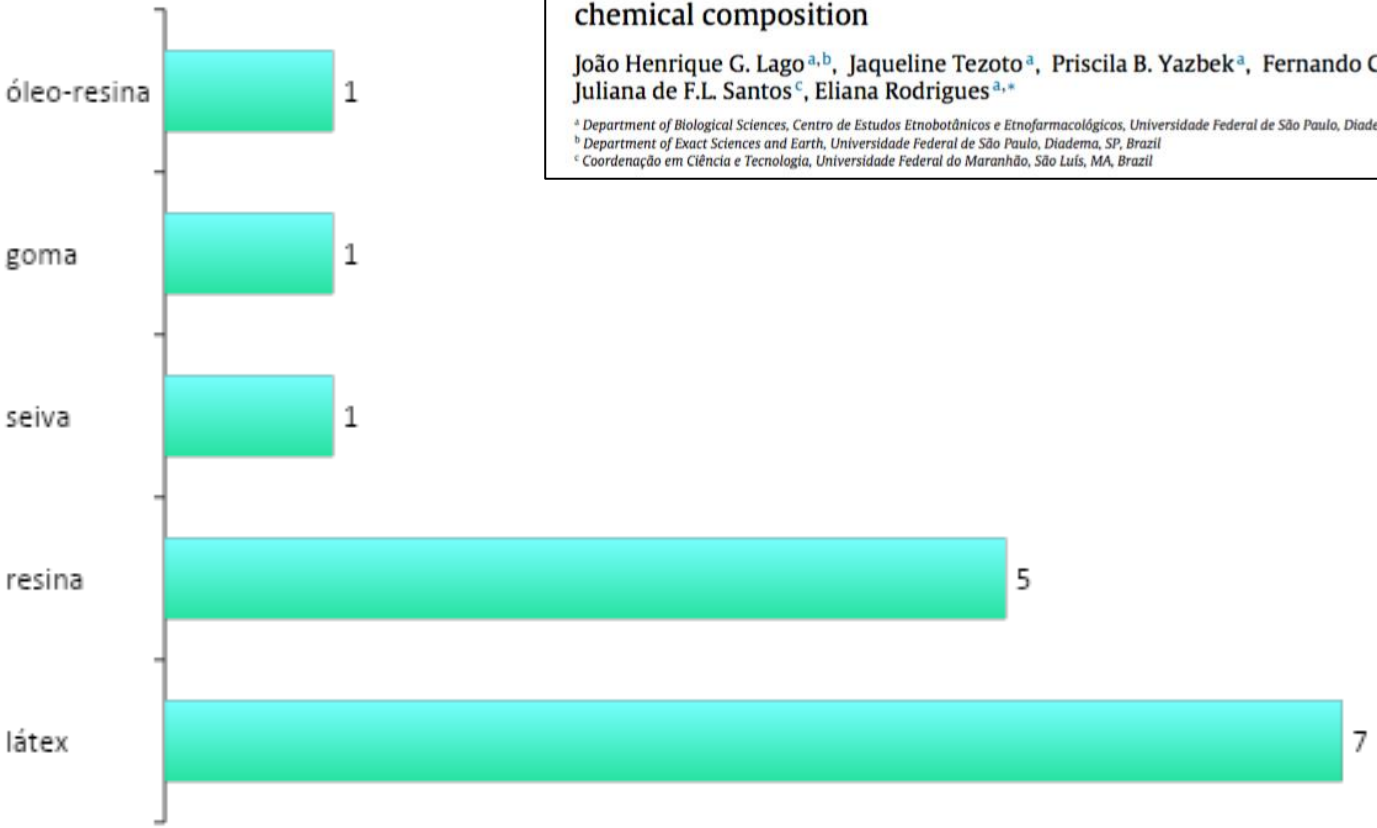


Caboclos River dwellers – Jaú River, Amazon State (1995)
Caboclos River dwellers – Unini River, Amazon State (2010)

RODRIGUES, E. . Plants and animals utilized as medicines in the Jaú National Park (JNP), Brazilian Amazon. **Phytotherapy Research**, 20: 378-391, **2006**.

RODRIGUES, E.. Plants of restricted use indicated by three cultures in Brazil (Caboclo-river dweller, Indian and Quilombola). **Journal of Ethnopharmacology**, 111: 295-302, **2007**.

SANTOS, J.; Pagani, Eduardo ; Ramos, José ; Rodrigues, Eliana . Observations on the therapeutic practices of riverine communities of the Unini River, AM, Brazil. **Journal of Ethnopharmacology,** 142: . 503-515, **2012.**



Revista Brasileira de Farmacognosia 26 (2016) 379–384

Brazilian Journal of Pharmacognosy
REVISTA BRASILEIRA DE FARMACOGNOSIA
www.elsevier.com/locate/bjp

Original Article

Exudates used as medicine by the "caboclos river-dwellers" of the Unini River, AM, Brazil – classification based in their chemical composition

João Henrique G. Lago[a,b], Jaqueline Tezoto[a], Priscila B. Yazbek[a], Fernando Cassas[a], Juliana de F.L. Santos[c], Eliana Rodrigues[a,*]

[a] Department of Biological Sciences, Centro de Estudos Etnobotânicos e Etnofarmacológicos, Universidade Federal de São Paulo, Diadema, SP, Brazil
[b] Department of Exact Sciences and Earth, Universidade Federal de São Paulo, Diadema, SP, Brazil
[c] Coordenação em Ciência e Tecnologia, Universidade Federal do Maranhão, São Luís, MA, Brazil

Dos 15 exsudados- 11 não foram mencionados na literatura farmacológica até o momento…

Ethnopharmacological and Ethnobotanical surveys developed by CEE's researchers among two cultures living in the cerrado biome (year)

Krahô Indians, Tocantins State (2001)

Farmers, Mato Grosso State (2012)

RODRIGUES, E.; Carlini, E. A. . Ritual use of plants with possible action on the central nervous system by the Krahô Indians, Brazil. PTR. **Phytotherapy Research**, 19: 129-135, **2005**.

RODRIGUES, E. ; Carlini, E A ; RODRIGUES, E. . Plants with possible psychoactive effects used by the Krahô Indians, Brazil. **Brazilian Journal of Psychiatry**, 28: 277-282, **2006**.

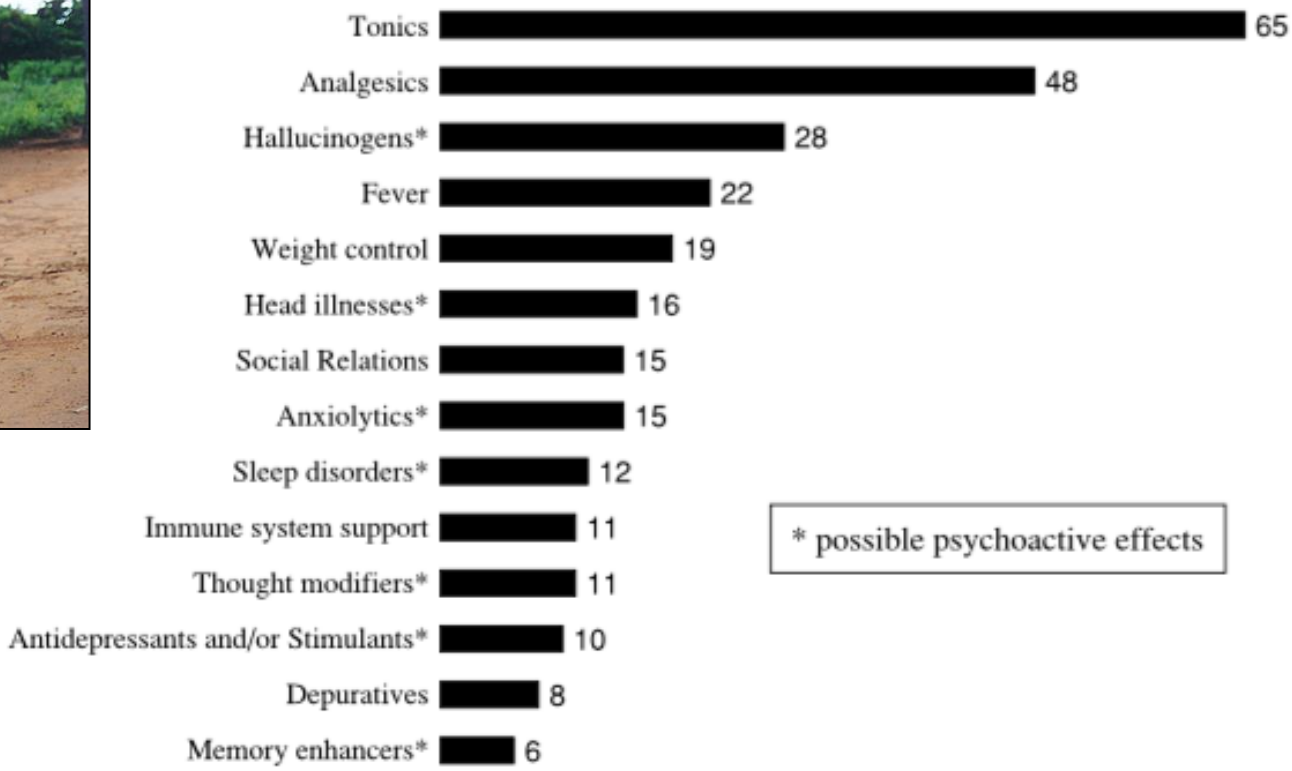
RODRIGUES, E.; CARLINI, Elisaldo Araújo . A Comparison of Plants Utilized in Ritual Healing by Two Brazilian Cultures: Quilombolas and KrahÃ´ Indians. **Journal of Psychoactive Drugs**, 38: 285-295**, 2006.**

PHYTOTHERAPY RESEARCH
Phytother. Res. **19**, 129–135 (2005)
Published online in Wiley InterScience (www.interscience.wiley.com). **DOI**: 10.1002/ptr.1636

Ritual Use of Plants with Possible Action on the Central Nervous System by the Krahô Indians, Brazil

Eliana Rodrigues* and E. A. Carlini

Department of Psychobiology, Universidade Federal de São Paulo, Rua Botucatu, 862 – 1° andar Edifício Biomédicas CEP 04023-062, São Paulo, SP, Brazil



PHYTOTHERAPY RESEARCH
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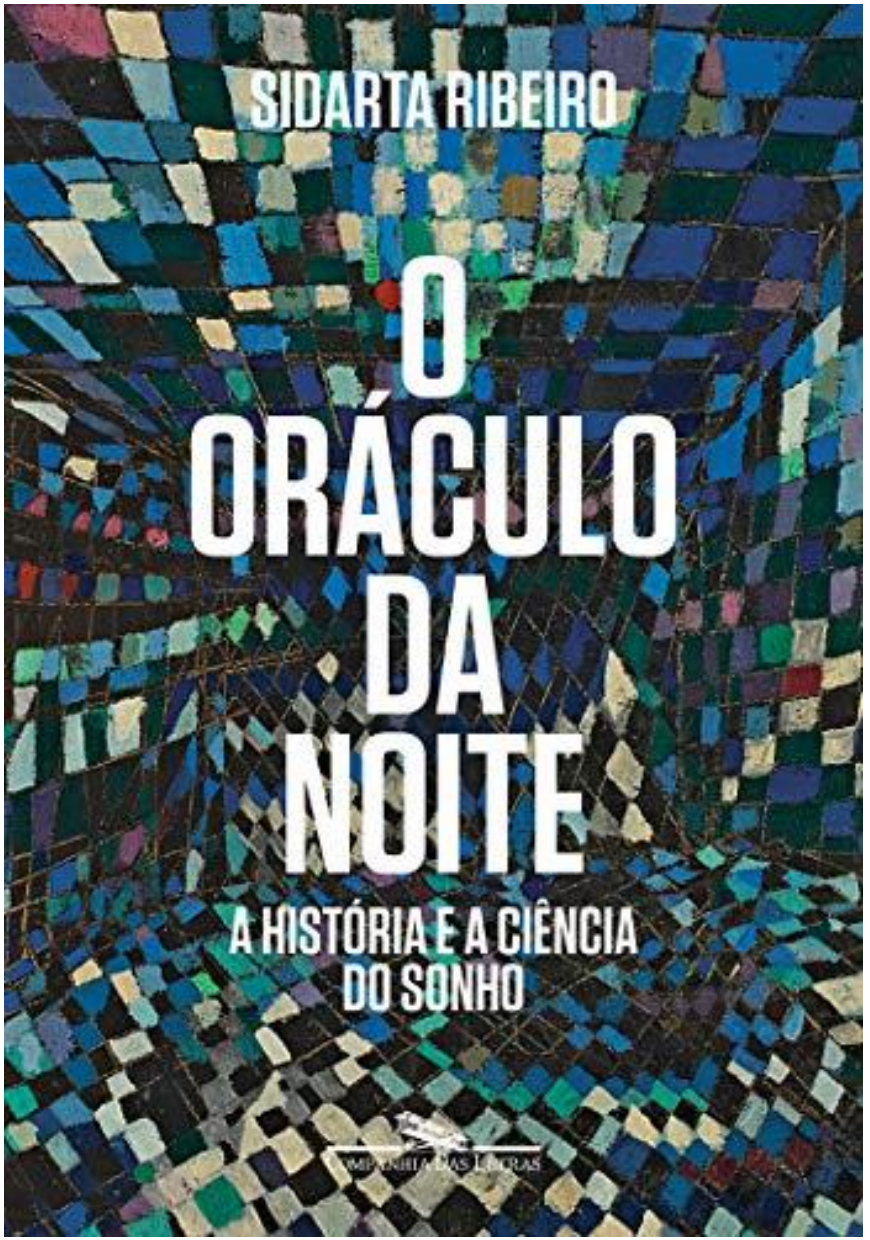
17. *To lose weight* (7)	5 Weight control
18. *To not fatten* (1)	
19. *To suppress appetite* (2)	
20. *To stimulate appetite* (6)	
21. *To fatten* (2)	
34. *To stop snoring* (2)	9 Sleep disorders[b]
35. *To sleep longer* (1)	
36. *To have premonition dreams* (1)	
37. *To sleep more lightly* (1)	
38. *To have good dreams* (1)	
39. *To induce sleep* (5)	


SIDARTA RIBEIRO
O ORÁCULO DA NOITE
A HISTÓRIA E A CIÊNCIA DO SONHO

Plantas que devem ser prescritas em doses inferiores a crianças e idosos

Índios Krahô, cerrado

diarréia

... "muito forte“ a idosos, por isso, deve ser evitada ou substituída por outras. Quando não é possível, eles poderiam usá-los, mas em doses menores...

ihhôtycti,
Psittacanthus robustus (Mart.) Mart. (Loranthaceae)

Combate a febre

Crianças podem consumir apenas metade de uma colher por dia, da decocção preparada com o tubérculo.

pincukrere
Diplusodon sp.
(Lythraceae)

dor na perna

Tubérculo utilizado topicamente para dor na perna

harejarê
Clitoria simplicifolia Benth
(Fabaceae)

“se ingerido, pode matar”

Picada de cobra

Tubérculo deve ser ralado e colocado sobre a picada de cobra.

ropjapachô
Cissampelos ovalifolia DC.
(Menispermaceae)

“se a água do tubérculo for ingerida, pode matar, uma vez que se trata de um veneno humano”

Fortificante para as pernas de bebês

As raízes ou folhas devem ser esmagadas para liberar um suco, a ser passado nas pernas do bebê.

ampo hôrerecre
Vernonia herbacea (Vell.) Rusby
(Asteraceae)

“se ingerido pelo bebê, ele morre”

Ethnopharmacological and Ethnobotanical surveys developed by CEE's researchers among cultures living in the Rain forest biome (year)

Migrants living in Bororé Island, São Paulo State (2007)
Afro-descendants living in Diadema, São Paulo State (2008)
Migrants living in Diadema, São Paulo State (2008)
Guarani Indians, São Paulo State (2009)
Herbs' Dealers, São Paulo State (2009)
Afro-descendants living in São Paulo, São Paulo State (2008)
Afro-descendants living in Minas Gerais State (2014)
Afro-descendants living in Ubatuba, São Paulo State (2015 - nowadays)

GARCIA et al. Ethnopharmacological survey among migrants living in the Southeast Atlantic Forest of Diadema, Sao Paulo, Brazil. **Journal of Ethnobiology and Ethnomedicine,** 6: 29**, 2010.**

SCALCO, N; Rodrigues, E . Changes in the acquisition and consumption of food plants and their relationship with Indigenous perceptions of health in a Guarani village, São Paulo, Brazil. **Public Health Nutrition**, 16: 1820-6, **2012.**

SOARES, J. A. R et al. Informal Trade of Psychoactive Herbal Products in the City of Diadema, SP, Brazil: Quality and Potential Risks. **Evidence-Based Complementary and Alternative Medicine**, 2013:1-11, **2013**.

SOARES, et al. 'Possible Adverse Reactions to Herbal Products: A Study with Individuals Who Resort To Popular Medicine in the City of Diadema, SP, Brazil'. PTR. **Phytotherapy Research,** 28: 405-411, **2014**.

CONDE et al. Local ecological knowledge and its relationship with biodiversity conservation among two *Quilombola* groups living in the Atlantic Rainforest, Brazil . **Plos One**, in press, **2017.**

4 interviewees - 217 PHs were recorded and categorized into two main groups:
stimulants (67%) and
depressants (27%) of the CNS;

16 of them were selected, and their 52 lots were acquired:

Catuaba, guaraná, ginseng, nó-de-cachorro, camomila, ginkgo biloba, valerian, mulungu, jatobá, anis-estrelado, erva-de São João, maracujá, marapuama…

Microbiology
The deficiencies observed in handling and packaging these lots by dealers were confirmed by microbiological analysis, 80.8% of them presented risk according to the indicators defined by the Brazilian Pharmacopoeia.

Pharmacognostic
The pharmacognostic analysis confirmed the authenticity of only 9 to 16 PHs analyzed.

Adverse Reactions (Literature)
In addition, descriptions of contraindications, adverse reactions and drug interactions were found in the literature for ALL the PHs.

The results of this study allow the observation of the priorities for the sanitary adequacy of the popular trade of herbs.

Hindawi Publishing Corporation
Evidence-Based Complementary and Alternative Medicine
Volume 2013, Article ID 894834, 11 pages
http://dx.doi.org/10.1155/2013/894834

Hindawi

Research Article

Informal Trade of Psychoactive Herbal Products in the City of Diadema, SP, Brazil: Quality and Potential Risks

Julino Assunção Rodrigues Soares Neto,[1,2] Edna Myiake Kato,[3] Adriana Bugno,[4] José Carlos F. Galduróz,[2,5] Luis Carlos Marques,[6] Thiago Macrini,[3] and Eliana Rodrigues[1,2,7]

Ethnopharmacological survey developed by CEE's researchers among the Afro-descendants living in the pantanal wetlands biome (year)

Afro-descendants (2001)

RODRIGUES, E. ; CARLINI, E.A. Plants used by a *Quilombola* group in Brazil with potential central nervous system effects. **Phytotherapy Research**, 18: 748-753, **2004**.

RODRIGUES et al. Preliminary investigation of the central nervous system effects of 'Tira-capeta' (Removing the Devil), a cigarette used by some *Quilombolas* living in Pantanal Wetlands of Brazil.. PTR. **Phytotherapy Research**, 20: 1248-1255, **2008**.

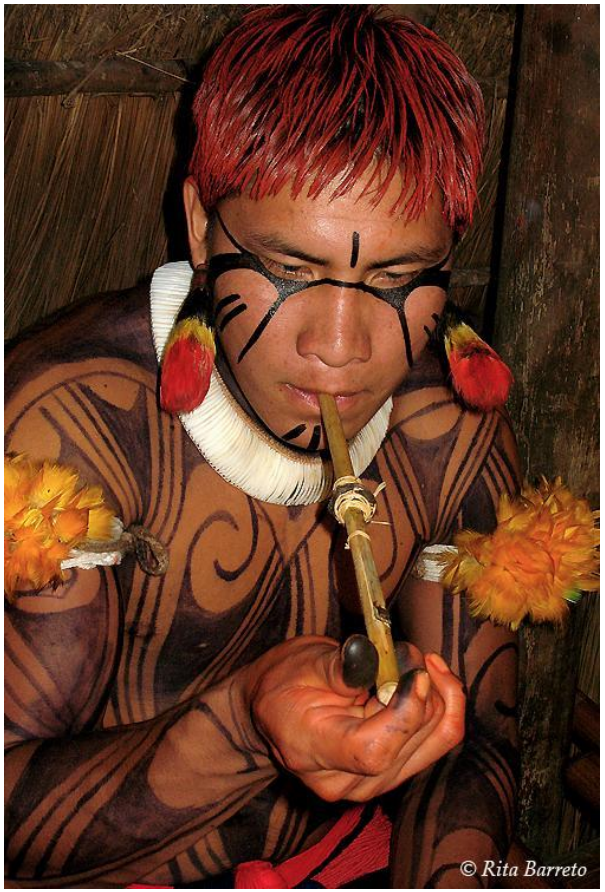
Ethnobotanical survey developed by CEE's researchers among Tibetan doctors at Men-Tsee-Khang, Dharamsala, India (2010)

ANTONIO et al. Formulas Used by Tibetan Doctors at Men-Tsee-Khang in India for the Treatment of Neuropsychiatric Disorders and Their Correlation with Pharmacological Data. PTR. **Phytotherapy Research,** 27: 552-563, **2013.**

Survey developed by CEE's researchers comparing medicinal plants utilized by primates (humans and no humans)

Zoopharmacognosy ⟷ **Ethnopharmacology**

woolly spider monkeys (*Brachyteles arachnoides,* E. Geoffroy, 1806)



PETRONI, L.; HUFFMAN, M.; RODRIGUES, E. Medicinal plants in the diet of woolly spider monkeys (*Brachyteles arachnoides* , E. Geoffroy, 1806) - a bio-rational for the search of new medicines for human use?. **Brazilian Journal of Pharmacognosy**, 27: 135-142, **2017**

Survey comparing medicinal plants utilized by the owners of dogs/cats in their pets and in humans.

Ethnoveterinary ⟷ **Ethnopharmacology**

Source: Jemigan, 2009

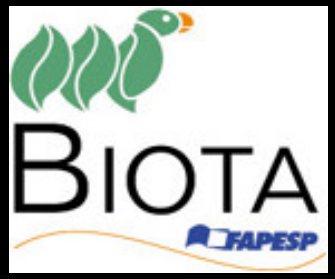
Source: http://scribol.com/anthropology-and-history/cultures/snorting-yopo-with-the-yanomamo-indians/

ANTONIO et al. Investigation of urban ethnoveterinary in three veterinary clinics at east zone of São Paulo city, Brazil. **Journal of Ethnopharmacology**, 173: 183-190, **2015.**

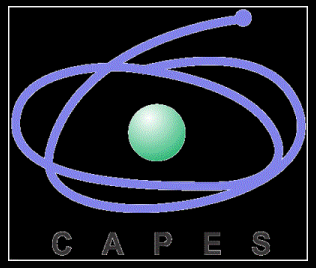
ETNOBOTÂNICA PARTICIPATIVA: CONSERVAÇÃO E DESENVOLVIMENTO LOCAL NO PARQUE ESTADUAL SERRA DO MAR - NÚCLEO PICINGUABA, UBATUBA, SP, BRASIL (2015-2022)


FUNDAÇÃO FLORESTAL


UNIVERSITY of HAWAI'I
MĀNOA


BIOTA
FAPESP


CNPq
Conselho Nacional de Desenvolvimento
Científico e Tecnológico


CAPES


Instituto de Botânica
www.botanica.sp.gov.br


1808
JARDIM BOTÂNICO
DO RIO DE JANEIRO

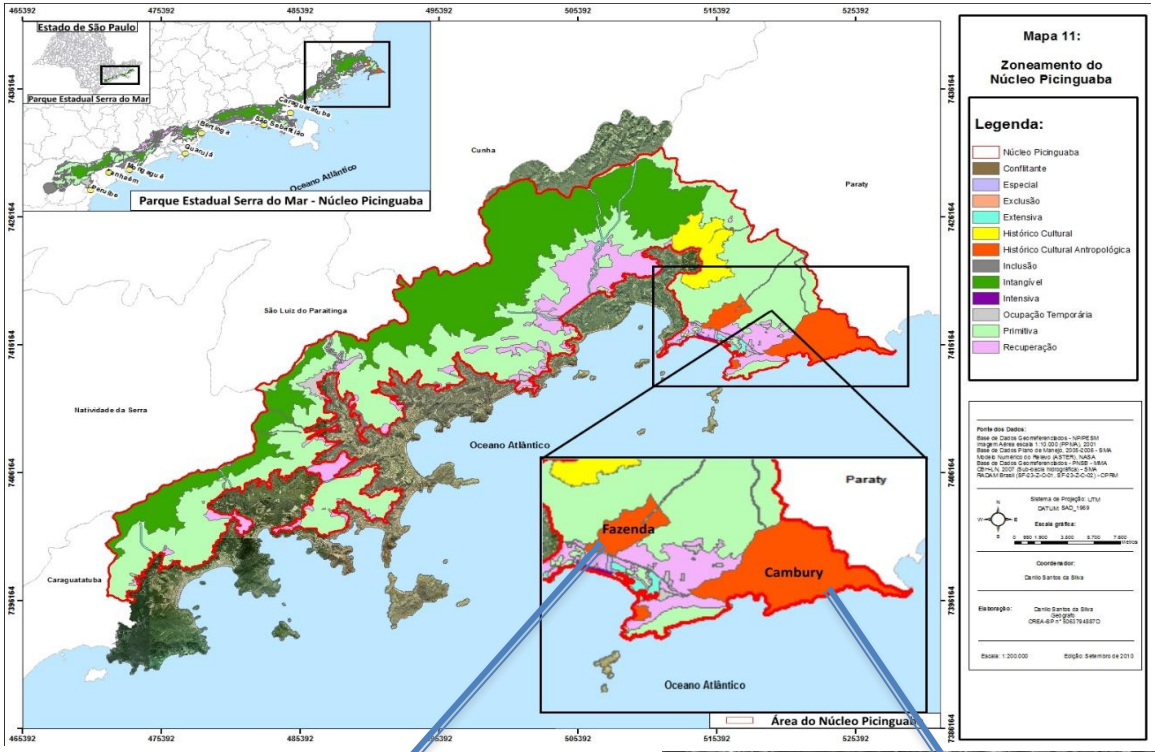

PREFEITURA DE
SÃO PAULO
VERDE E MEIO AMBIENTE


EACH
Escola de Artes, Ciências e Humanidades
da Universidade de São Paulo


UNIVASF
UNIVERSIDADE FEDERAL DO
VALE DO SÃO FRANCISCO


UNICAMP


unesp



Quilombo da Fazenda

Quilombo do Cambury

A IDEIA
....desenvolver uma metodologia inédita em etnobotânica por nós

O registro dos conhecimentos dos quilombolas PELOS quilombolas
amplia seu protagonismo na tomada de decisão sobre:

O uso e manejo das plantas disponíveis no seu ambiente e
O possível uso econômico dos seus conhecimentos.

COMO ISSO SE CONECTA COM A CONSERVAÇÃO E DESENVOLVIMENTO LOCAL?

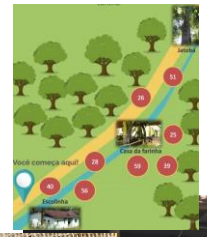
FASES E PRODUTOS DO PROJETO

FASES 1 e 2

2015-2018

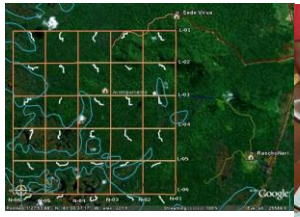
Artesanatos
Medicinais
Alimentares
Temperos
Construção
Tintura
Aromáticas
Combustível

Trilhas de plantas medicinais e aromáticas



FASE 3

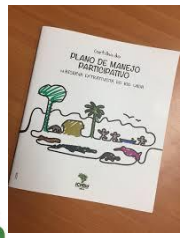
2017-2018



Seleção das plantas
Cosméticos e plano de manejo participativo

FASE 4

2020-2022



SELO VERDE AMBIENTAL
CERTIFICADO DE QUALIDADE AMBIENTAL

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Journal of Ethnobiology and Ethnomedicine

RESEARCH Open Access

Participatory ethnobotany and conservation: a methodological case study conducted with *quilombola* communities in Brazil's Atlantic Forest

Eliana Rodrigues[1*], Fernando Cassas[1], Bruno Esteves Conde[1], Crenilda da Cruz[2], Eduardo Hortal Pereira Barretto[3], Ginacil dos Santos[4], Glyn Mara Figueira[5], Luiz Felipe Domingues Passero[6], Maria Alice dos Santos[2], Maria Angélica Silva Gomes[2], Priscila Matta[7], Priscila Yazbek[1], Ricardo José Francischetti Garcia[3], Silvestre Braga[4], Sonia Aragaki[8], Sumiko Honda[3], Thamara Sauini[1], Viviane S. da Fonseca-Kruel[9] and Tamara Ticktin[10]

PROTAGONISMO PIONEIRO

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Plants utilized as medicines by residents of Quilombo da Fazenda, Núcleo Picinguaba, Ubatuba, São Paulo, Brazil: A participatory survey

P.B. Yazbek[a,*], P. Matta[b], L.F. Passero[c], G.dos Santos[d], S. Braga[d], L. Assunção[d], T. Sauini[a], F. Cassas[a], R.J.F. Garcia[e], S. Honda[e], E.H.P. Barreto[e], E. Rodrigues[a]

PLOS ONE

RESEARCH ARTICLE

Participatory methods on the recording of traditional knowledge about medicinal plants in Atlantic forest, Ubatuba, São Paulo, Brazil

Thamara Sauini[1]*, Viviane Stern da Fonseca-Kruel[2], Priscila Baptistela Yazbek[1], Priscila Matta[3], Fernando Cassas[1], Crenilda da Cruz[4], Eduardo Hortal Pereira Barretto[5], Maria Alice dos Santos[4], Maria Angelica Silva Gomes[4], Ricardo José Francischetti Garcia[5], Sumiko Honda[5], Luiz Felipe Domingues Passero[6], Bruno Esteves Conde[1], Eliana Rodrigues[1]

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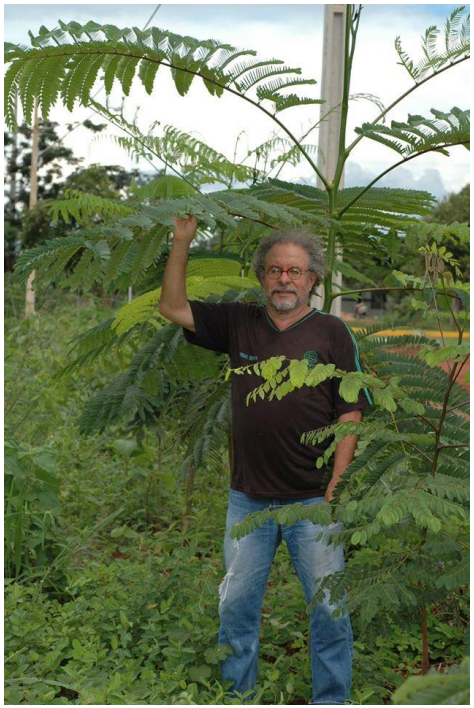

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