

Aula 10

6 CHà B=7 5 '97 CBê A=7 5

META

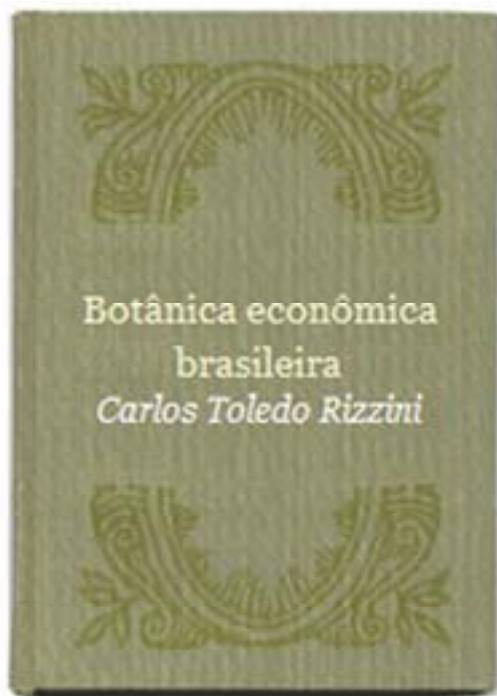
Objetivos da aula: compreender a importância da botânica econômica para a agricultura e a indústria, bem como a utilização das plantas medicinais e aromáticas.

OBJETIVOS

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DESENVOLVIMENTO

Conteúdo programático: Botânica econômica, plantas medicinais e aromáticas.



7UdUXY6chj b]WVWb' a]WVfUg Y]fUzXY7Uf'cgF]m]b] YK Uh'f'A c'fg'
(Fonte: <http://openlibrary.org>)

=B HFC 8I uÈC

Î 6chb]W9Wb' a]Wfc Ygi Xc X]gdUb]gZ b[c]gU] U]gYUW]f]U]g
que direta ou indiretamente, positiva ou negativamente afetam
c' < ca Ya ž g Ug cVYj j . bW]Z YUa Ubi hb, -c' Xc' Ua V]YbY' Cg
YZ]hcgd cXa' gY' Xca f]hWg]Wa YVU]g]Ua V]YbU]gci 'di fUa YbY'
Yg]hWg]gYi i g' dcXYg]f'bc' d]g]Xc]dfYg]bY'ci Z h' fc' Î ; "9"
Wickens em Economic Botany: Principles and Pratices, 2001.

8 i fUbY'cg• ħa cg) S\$'Ubc]g]U]g]a dcf]h]b]h]g]W]h' fU]g]ha' g]Xc']b]fc!
Xi n]X]g]Ya' ħc'Xc' c'a i bXc' YW]h] U]X]g]Ya' 'ei Uei Yf' cW' cbXYU]g]g]Xc'
VYa "C gdf]b]W]U]g]W]Y]U]g]i' ħf] c]z]U]f]cn]Ya']\c' Î' g'c' W]h] U]X]g]Ya' ħc'Xc'g'
locais onde o clima permite. As plantas desconhecidas na Europa antes das
j]U]Y]bg]XY'7c' ca Vc]z]b]W]g]j' Yc'a']\c]z]c' ħca U]Y]Y]U]g]d]a' Yb]U]g]Xc' [. b]Y'c'
7U]g]W]a' žg'c' U]cf]U]W]h] U]X]g]Ya' ħc'Xc' c'a i bXc'"5' [i a U]g]W]h' fU]g]f]cd]U]g]
ħ]a' V]fa' g]Y' ħc'f]b]U]f]a' j U]g]Z]W]a' c' U]V]c]ff]U]W]U]Yc' X]b]X]h]Y]f]c"



7ca c'X|rc bUWU ~c'Ubhf|cf'UWá UZUVch|b|WYWb' a |Wĥá 'Wá c' cVYĥj c XYĥi Xc Ui h' |nU ~c XYd'UbĥgYci hfcgcf|Ub|ga cgdYc < ca Yá dUfUj f|UXcg'Úbg" B YggUXÚb), ~c'ci hfcg| fi dcg XYd'Ubĥg'ei Yb-c' Úg 5b| |cgdYfa Uĥĥá Vfa 'g-c' |bWg'g'YbhYUbcz'bzYggYWĥĥi 'czUgi h' |XUXg Uf|Mi |Xg'gd'Ubĥg'Wá 'ÚcfYggf-c' hfUUXg'

5c'Wbhfz|c Xc'ei Yc'Yá dfY|c'XUdUj fUÍ'Wb' a |Wĥi' dcggUui Xfz YggYfá c XcgYĥi XcgVch|b|Wgb-c' gYcWdUi b|Wá YbhXYĥg|fWĥgei Y ĥb\lá |bhfYggYa cbYzf|cza UĥXYrcXg'Uei YUgei YgYlá i h' |nUXgdYc' Homem. Diretamente, podemos usar plantas para obter alimentos (para gYĥg' i a Ubcgci 'ci hfcgUba UĥZ'UfUg'CEcg'Wá Vi g'ĥj Yza UX|fUza YX| Wá Ybhcg'YbhYci hfcg' -bX|fYĥá YbhZ'Ugd'Ubĥg'dcXá 'bcgUZĥf'UfUj fg XYg' U|bŪi . bWU'Ud'fcXí , ~c' Ud'W'Uza cbcW'h fUg'fĥj UĥXU|b\UĥZYW v' a i h'Xg'Ud' |bUz'Ybj c'j YbXc' X|Z'fYbhg' Xg'Ud' |bUg' Vch|b|Wg' 8 Uĥ a UĥfU|W'cbUg'Wá c HU'cbca |Uz'9W'c| |UY: |g'c'c| |Uz'g'a Uĥ' || UXg' UW'bW'g' i a Uĥg'Wá c' Gc'Vc'c| |Uz' < |g'CE|U9Wb' a |WY; Yc| fUU 9Wb' a |Wz'dUg'U'bc' dcf'WbW'g'U'f'W'Ug'Y9b| Yb\UfU: 'cfYĥU"

9Z'Ya VcfUUbcgg'UXdYbX bWU'dYfUbhY YggYg'fWf'g'g'g'YUW'fUz'Xg' & S"SSS Ygd'fW'g'XYd'Ubĥg'Xg'f|Mi |Xg'Yá (*S'Zá †|Uz'UdYbUg'Z'ĥá cg' i g'Uá d'c'XY' SS'Ygd'fW'g'XY&S'Zá †|Ug'bUg' |b\Ug'XYd'fcXí , ~c" HcXg'Ug' dUfU'g'Xg'd'Ubĥg'dcXá 'g'f' i h' |nUXg'Wá c' CE| ~cgj Y| YUĥj cg'ffU'ĥg'z' W| YYZc' \Ug'YfYd'fcXí h'j cg'fU'cfYg'YZi hcg'."

J'Uá cg'ZUf'UdYbUg' i a 'dci W' Xg'df|bW'Ug' Ygd'fW'g'ei Yg-c' Wb| g'X'fU'Ug' 5c' UbU' i a U' |g'U'XY'fYZf. bW'g'g' |Y|Xg' dUfU'WU'gY, ~c' f' disponibilizada.

D@5B H5G'5@=A 9B Ha7 =5G'

5gd'Ubĥg'g-c' fYg'cbg'zj YgdYUg'VfYj |j . bWUXUa Ucf|UXcg'Uba Uĥ Y |g'Ybhg'bUHMfU' GYUXYZ'fa UX|fYUz'dUfU'Uba Uĥ\YfVj cfcg'zci |b| X|fYUz'dUfU'cg'W'f'bj cfcg' 5g'Zá †|Ug'a Uĥ' |a dcfU'bhg'Z'cfbW'X'cfUg'XY alimentos podem ser citadas: Poaceae (cereais); Fabaceae (legumes); Annonaceae, Myrtaceae, Rutaceae (frutas); Apiaceae (verduras) e Solanaceae (frutas e verduras).

C g'WYUgg-c'cg'Zi hcg'Xg'f| fUá |bYg'Zc' h'dc W'f|cdg'G-c' |a dcfU'bhY Z'bhXYbYf| |Uz'Xj |Xc' U' U'c' W'bhY' Xc' XYUá |Xc'"7ca dUfU'cg'Wá 'ci h' fUg'Z'bhg'Uá |z'W'g'ffU'ĥg'z'ĥ V'f'W'cg'YMi 'Vcg'z'cg'W'f'Ugg-c' g' dYf'cfYg' dcf'W'bhYá 'a Ugd'fch|bUg'Xc'ei YfU'ĥg'fa UbX'c'W'z'ĥi V'f'W'cg'fU'U'U' 9bhYUg'Ygd'fW'g'a Ugi h' |nUXg'Yg'c'.

%'ÁA |'c'ci' fNYUa Uĥg'DcUWU'LÍ '9a VcfUdci W'g'dcj cg'XidYbXlá 'Xc' a |'c' Wá c' U|a Yb'c' Vzg'W' XYg' UX|YU'Ud'fcXí , ~c' a i bXU' f' a i |'c' [fU'X'Z'Xj |Xc' Ugi 'Yá dfY|c' bUd'fcXí , ~c' XYd'fcXí hcg'Xf'j Ucg'Wá c' c' Uá |Xc'z'U'cg'XY'a |'c'z' |fcdYg'XY| 'W'g'z'CEcg'Wá Yg'ĥj Yg'za Uf|Uf| bUg'fU ~c' U|a Uz'YbhYci hfcg' C' a Ucf' d'fcXí hcf' a i bXU' XY'a |'c' g-c'

cg'9I 5žfYgdcbgj Yg'dcf'a Ug'XY) Ši 'XUdfcXi, ~c'a i bX]U'''Oc bh'XU
imagem: Simpson, 2006]



Milho

& ÎHF][cĭ fHF]h]Wa 'Ug'hj i a žDcUWUŁ.Ĭ < z'j zf]Ug'Ygd]Wg'XY hf][cž
U[i bg'Xd'c]Xgžci hfcg'hfUd'QXg'Yci hfcg'U]bXU\Y U'd'c]Xg'5g'Ygd]f'
Wg'Xd'c]Xgž'a Ug'df]a]hj Už'g-c' dci W'i h']n]U]gž'g'b-c' Ya 'Ygi Xcg'XY'
a Y\cf]a Ybc' [Yb]f]W/c' HF]h]Wa 'Xi fi a 'f]bL'f'a i]lc' W'hj Ux' d]fU
UZM]W]~c'XY'a UMF~c'Ya Ugg]g'Wb[. bYf'g'5' Ygd]WY'XY hf][c'a Ug'
]a dcf]U]bh'Ya 'j c'ia YXY'Wa YVU]nU]~c'f' H'Ug'hj i a 'f]bL'c' hf][c'XY'
d-c''C' hf][c'g'YXg]bj c]j Ya Y\cf'Ya 'W]a Ua YX]hff] bYcž'fU~c' dYUei U'
c'6f]U]g' b-c'f[f]UbXY'dfcXi hcf'Xygg'WYU'Y]a dcf]U[f]UbXYgei Ub]XU]Xg'
do mesmo, principalmente da Argentina. [Fonte da imagem: Simpson, 2006]



Soja

' ''Î5ffcnĭ 'fc f]nUg]h] UžDcUWUŁ! 'C' Uffcn' f]bX]gd]Ybgj Y'bUX]YUXY'
a Ug'XUa YUXY'XU dcdi 'U~c'a i bX]U' dc]g'YY'f'Vz]g'W' d]fUcg' d]U]gž'
a Ug'dcdi 'c'g'g'Xc'a i bXcž'Wa c'U7\]bUYUabX]U'9a Vcf]U~c' g'Y'g]U]U
quando o cultivo do arroz tenha se iniciado, certamente foi em algum lugar
Xc'G'Xg]h'5'gž]W''C' Uffcn'dcXy'gf'W'hj Ux' Ya z'fYU'gg'W]g'ci U]U]U]gž'

a Ug'YggY• hã c' hãc' XYW'hj c' f' dfYZfYbWU' dcf' ZcfbYWf' a Ucf' fYrcfbc' bUdfcXì, ~c" OcbhYXU]a U] Ya . G]a dgc bž&SS*Q



Arroz

9'cg'hi fVfW'cgYfU'hYg' %Í 6UHUÍ fGc' Ubi a' h' Vfcg a žC' UbUWU! 9a' hã d'cgdf!\]g'CEWgž cg'dcj cg'Uã Yf]Wbcg'W'hj U] Uã 'UVUHU Ya' fY] Yg'XY [fUbXY U'h]i XY fUã UXY" "SSS'a Eždc]gbYgg'c'W]gc' a]\c' b-c' gYUdHU' C' gY' fcdY' g' UdfYbXfUã 'Wã' dcj cg' g' !Uã Yf]Wbcg' df]W' ca V]Ubcg' U' i h']nU' ~c' XU VUHU' 5' g' U]bfcXì, ~c' bU9i fcdUb~c' Zc] ZW' dc]g' UVUHU dYf' h' bWU i a UZã ð]UZã cg' Udcf' d'cg] f' Ygd' fYg' k' CE]Wg' Wb' W]X]gd' Ycg' Y' fcdY' gž Wã c' UYU' X'cbUf' h' fcdU' Y' U' X'cbU' LYUã U' X'fz] cfU' A' U' X'U' cfU' E' Dcf' fa ž a batata foi introduzida na Europa e em pouco tempo passou a assumir i a U]a dcf] b]WU'Y' h' U'cf' X]bzf] U'ž' h'cf' bU' X'c! g' Y'c' U]a Y' b'c' 'Vz]g' W' XY' j' zf] cg' dU' g' C' f' Y' b' X]a Y' b'c' 'XU' W' h' f' U' XY' VU' HU' g' d' f' U' XY' 'cb] Y' c' XY' ei U' ei Y' f' W' YU' a U' g' fa i] h' c' a U' g' dc' V' Y' d'f' ch] Wã Y' b' Y' ei Y' ei U' ei Y' f' i a 'XY' g' O'cbh' Y' da imagem: Simpson, 2006]



Batata

&T A UbX]cW]i fA Ub]chYgWYbH]Z9i d\cfV]UWU]L! 5`a UbX]cW]H]a`dUFU
a i]hcgdcjcgXU]a Z]W]YXU`5a f]W]Xc`G`f]f]b]M]U]a YbhY`a`i]hcg
Yg]U]c]g]Xc B cf]Y]Y]B cfX]g]Y]Xc 6f]U]L]U]a Yga U]a dcf]h]b]W]U]W]a c U]a Yb]c`
Vzg]W`ei Yc U]fc]n`Yc`h]f]c`d]U]U]ci h]U]g]f]Y]`]" Yg`Xc`d`U]b]Y]U`C`f]Yb]X]a Yb]c`
X]g]W]h]i f]U]g]X]Y`a UbX]cW]f]U]b]X]U]a U]cf`ei Y]U]g]X]Y`V]U]H]Z]a U]g]H]a V]fa`f`
X]U]M]b]h]Y`ei U]b]c`{`f]Y]g]f]j U]df]ch]W]`5`fa`X]U]U]a Yb]U]~c`X]f]Y]U]H]a V]fa`
pode ser consumida em outras formas, como a farinha de mandioca, por
exemplo. [Fonte da imagem: bioplasticnews.blogspot.com]



Mandioca

9bhYcg`Y]i a YgYU]g]j YfXi f]U]g]Y]g]c`
%`I7Ybci f]U]`f]B U]W]g]W]f]c]H]Z]5d]U]W]U]L]I`v`i a U]f]U]n`W]h]j U]X]U]Y]a`U]f]U
Y]g]W]U]b]U]g]f]Y]`]" Yg`G`X]g]Y]Z`B cfX]g]Y`Y`G`Xc`6f]U]g]`"9a VcfU]dfcXi nU
a Y`cf`Ya`z]f]U]g]X]Y]W]a U]L]a Ybc]z]bc]j U]g]`b]U] Ybg]g]c`h]c`Y]f]U]b]h]g]U]c`W]cf`Y`
ha`a U]g]f]Y]g]h]b]W]U]g]d]f]b]W]U]g]Xc`Yb, U]g]X]Y]Z`U]Y]a`"5`fa`Xc`W]bg]a`c`
]b]b]U]i f]U]z]f]i h]n]U]U]W]a`c`a`U]h]f]U]d]f]a`U]d]U]U]b]X`g]f]U]g]d]f]c`W]g]U]Xc]f]U]g]X]Y`
alimentos, que a comercializam na forma processada, em seleta de legumes,
U]a Yb]c]g]b]Z]b]h]g]Y]g]c]d]U]g]b]g]U]b]h]b]Y]U]g]O]cb]h]Y]X]U]a U]Y]a`.G]a`d]g]c]b]z]&SS*Q



Cenoura

&ˆÎHca UMİ fC`Ubi a `nWdYfgWa /Gc`UbUWUİ v i a Zi hc`Uf[Lã Ybh' utilizado para consumo in natura ou processado, na forma de molhos, to- a UhggWgZybhYci hfcg`C`6fUg`fi a`Xcga UcfYgdfcXı hcfYga i bXUg` Gı W/hj c Xc hca UMfc Y || Yi a`Uhc bj Y hWc`Cf]WY]bMgUı h`nU`~c` XYa`~c`XYcVUžc`ei YXz`UYgUW/hı fUYy UxU]a dcfh]bMUYWb' a]WY gVU`Cı hUg`g`UzWUg`g-c`Uf[Lã Ybh' i h`nUxUž Wa c`cg`d]a Ybh' Yg e as pimentas (Capsicum spp.), as berinjelas (Solanum melongena), entre ci hfcg`C`ocbhYXU]a U Ya .PP`fUhc`g`_`Wã`VfQ



Tomate

E algumas frutas:

%ˆÎ@fUb`U`Y`g]a]UfYg`f7]fi g`gdžFı hUWUİ`J`z]cg`h]dcg`XY`UfUž`]a`~cž]h]b]UYa`Y`Y]Wg`5`a`Ucf]UXLg`Ygd]WYg`f`cf]]]bzf]UXUã`gUY` g-c`Uf[Lã Ybh'W/hj`UXLgd]fUcVhb,`~c`XYZı`h]g]b]b]hı`fUžci`dfcXı,`~c` XYg`WgZ`]WfYgYdc`dUg`Ufa`XYg`fYa`i`h`nUxUž`d]fU`U`gb-c`U]a`Ybh'Wg` bUdfcXı,`~c`XYa`YX]Wã`Ybh'cg]f]h]Lã`]bU7LY`Yg`b]Wg`fca`z]Wg`C`ocbhY` XU]a`U`Ya`.PP`fUhc`g`&Vc[gdch`Wã`Q



Laranja

&"Í5 VUM jĭ 'f5 bU5g'Wa cg gř6fca Y]UWUŁĪ 'fi a Ud'UbHUbUj UXC' 6fUg]žXYWĵa Uhfcd]W'"7UXUd'UbHUdfcXi ni a •b]W'Zi hc f]bZi hġMb! WŁ"C 'Zi hc' fi h]nUXc' hUbc'dfUc' Wbg a c']b' bUi fUci 'Ya '[YY]Už]WfYgřj]b\cgřj]bU fY Y U i UfXYbhY' DcXY gřf' UjXUi h]nUXUWa 'Úbg b-c Uja Ybh]c gřbUc Vhb, ~c' XYz Wc žzV]Xcg V]f]Wza z]W' YUg]Wf]W/ fU" YgdUfUUb]a Ug'YUVfca Y]bU'9a '8S9žc'6fUg] 'Zc]c h]fV]fc'a Ucf' dfcXi hc' XYUWU]'Xc'a i bXc' fUfzg'XUHJ|bX]UY:]]d]bUg'"OcbhYXU
imagem: Simpson, 2006]



Abacaxi

' ĪI j Ū 'f]]hg'gd'ŁĪ 'Df]b]W]Ua YbhYj Uf]YXUXg'XY J]hgj]b]ZfU@žXY cf]] Ya 'Y fcdY]Ug-c' i h]nUXg'bUdfcXi, ~c' XYj]b\cgřdc'dUg'YZi HU]b' bUi fU' OcbhYXU]a U Ya . PPXU YbhY'df"[cj "Vf'Q



Uva

("IA fUWzi' fDug]CfUgdd'Ll j zflUgYgd]WgXYa fUW/z'g-c d'UbhUg' bc'6fUg'dlUdfcXi nlf'g WgYdc'dUgUfa Xc Wbg a c]bbUhi fU'ObhY XUJa U Ya . PP'fX]a X]CfYg'Wa "VfQ



A fUWz'

D@5B H5G'5F C A ãH=75G'9 'A 98 =7=B 5=G

J zflUg'd'UbhUg'Ufa UhYbLã 'CEYcg'YggYbWUg'Ya 'W'i 'Ug'Ygd]WUg'Wa c' a Y]VCE]hcgYWbXzf]cgZ]hYgdcXã 'dcgg]f'Uca U] fUXj Y fX]]bhYggY bU]bX'gf]UXYdYz a U]]UYWga f]WgLY#ci 'dfcdf]YXUXga YX]WUg'C' i g' XYd'UbhUg'dfUfca U]rU ~c YWbhc YYWfUXcgXj Yfg'ga UYgei Y UZHã Ug'XY'i a UbUfi a Udfz]W]hc Ubh] U]Udcbh' XYdfcj U] Ya YbhY UbhWXY'c 'Ygz[]c'XY'Vj']]nU ~c"5' f]ei Y]U'Ucf]g]W]Xc'6fUg'd'Yfa]hY ei Yc'dUg'gYUi a 'Xcg'a UcfYg'dfcXi hcfYg'XY'CEYcg'Ygg bWUg'YXY'gYi g' Wa dcbYbhYgdi fcg"5 a YX]WUdcdi 'U'VUg'Y]fUZHã Vfa Xj]Xc { : 'cfU Yga UXU{ '7i 'h' fUXj Yg]U]M]Z'fVUg]UbhYf]W

' 9bhY Ug'd'UbhUg'dfcXi hcfUg'XY'CEYcg'YggYbWUg'Yg'c' Ygd]WUg' U'VCEYg'Ug'Zi h'g'V]W]g'f]]fi g'gd'z'Fi h]WU]zei YWã c j]a cg'Ubh'g' Hã Vfa 'g-c i h']n]Ug'dfUUU]a YbU ~cZ'Ua YbUfa YbhUgd'ZU]i a Ug' [fUã]bYg'f]d'U]M]Z'YbhY'ci h'cg"

%'9gg bWUg'XY9i Wndh' g'gd'fã n]h]WU]Ll j zflUg'Ygd]WUg'XYggY[. bYfc' g-c' W'hj Uxcg' b-c' g'a YbhY d'fU'cVhY' a UX]fU'ci 'a U]f]Udf]a U XU d'fcXi , ~c XYd'UdYza Ug'Hã Vfa 'd'fU'UcVhYb , ~c XYgg bWUgi h']n]Ug'bU dYz a U]]Z'Wga f]Wg'Ya YX]Wã Ybh'cg'Ubh]]f]dUg' '9i Wndh' g['cVi 'lg'

Fonte da imagem: ancienthealingoils.com]



Eucalyptus

&"A YbhUgld" f@Là]WUML.Ì `fLà cg'YZc` \Ug'XY'Ygd]WUg'Xc' [. bYfc'g-c' i h]n]UXcgbUM hfU ~c Xc`à Ybhc`"9a VcfUUCf]] Ya` XUYgd]WUg'YUXYgWb\Y' V]XLZFY]gfcga UgUbh]] cg'XYgY' i g'g-c`YbWbhfUXcgbU9i fcdLZ5a ff]W Xc`B cfhY'Yã g]Uff]b]WdUa YbhY'bc` \Ld-cE"C`6fUg]zUhf%-) žYfUi a` Xcg` a UcfYgdfcXi hcfYg'XYa Ybhc`bUhfU`"9gg]Ygg b]WUfi h]n]UXubU]bX`gf]U Wga ff]WYZfa UM.h]WZUg]a W'a c`fUX]XULc`HUUW`XYW]UffcgZ]WYa Yg de barbear, balas e licores. [Fonte da imagem: vidaempaz.wordpress.com]



Mentha

' "DcUMYUfca zH]Wg!`YbhfYcg[. bYfcgXYi g'c`a Ug`Là d`c`Yghc`7ma ! Vcdc[cb`YJ Yhj Yf]U`9gd]WUg'XYggY[. bYfc'g-c`Wb\W]X]g`W'a c`Wd]a ! `]a ~c`f7" ÛMi cg`g`Y7" W]fUhf gZcf]]]bzf]cg`XUã g]UY`ab`X]UC`V]X]b]Ug` fYg]W]j Lã Ybh/W]fcbYUf7" bUXi gZcf]]]bzf]UXY`>U`U`Y`c`j`Yhj`Y`ci` dUWci` `]f] Yhj`Yf]Un]n]Ubc]X]gZ`XUã g]UHcd]W" ("7]f]i g`gd"3/4f]i H]WUML`Ì`8]ZfYbhg`dUfhg`X]g`X]ZfYbhg`Ygd]WUg`fY` g`Ug] Uf]X]X]Yg`L`X]ggY[. bYfc'g-c`i h]n]UXcgdUfUUCVhb, ~c`XYCEYcg`W]f]! Wg`9gg]g`CEYcg`dcX'a`gYf`Y`h`fUXc`g`X]g`W]W]g`Xc`g`Zi`h`gZc`dYf]W]dcZ` dcf`Uf]h`c`/X]g`Zc` \Ug`Y`ÛcfYgZdcf`X]g]U`~c`W'a`j`Udcf`X]i`i`U`C`g`dUg]g` a`UghfUX]W]cbUg]bYggUdfcXi, ~c`g-c`cg`Yi`fcdY`g'a`YX]hff]b]YcgZ`Ya`VcfU` Hã`V]fa`gYUY`d`cfUXUYa`dUg]g`XU5a`ff]WZ]b]W]b]Xc`c`6fUg]"

Entre as plantas de uso medicinal, podemos citar aquelas utilizadas para UY hfU ~c XYg Vg]b]W]gYZUM]W ~c XYa YX]Wã YbhcgYUei YUgi h]n]UXg na medicina popular.

%`Î`>VcfUbX]i`fD]c`W]di`g`gd`z`F`i`H]WUML`z`Xc`ei`U`gY`Y`h`fU`X]g`Zc` \Ug`U` d]c`W]d]b]LZ`g`Vg]b]W]i`g`X]Ubc`h`fU`Lã`Ybhc`Xc`[`U`W'a`U` &`Î`~d`W]i`fDgn`Wch]U]dY]W]Mb` \Uz`Fi`V]UMUz`W`UfUn`Zc`fb`W]WUYa`Y]b]LZ` g`Vg]b]W]UWã`U`~c`Lã`Y]W]XU` "'Î`9ghj`j]i`fG]j`j]UfYU`X]Ub]LZ`5`gh`fU]U]z`ei`Y`Wb]hfa`c`Ygh]`jcg]XcZ` i`a`W'a`dcg`c`a`i`]h`c`d`Yei`j`g`Xc`U`i`Ua`YbhY`ei`Y`z`YgZ`g]b]Xc`i`h]n]UXc` W'a`c`UXc,`Ub]h`bUhfU`b`c`!`W]CE]W`/`

("Ī7UMĪ ĩ fĤN YcVfca UWW ~cž GMFW]UWUMž d`UbĤUei Y dfcXi n`Zi ĥg ei Yg-c`a Uĥf]Udf]a UdLfUUdfcXi , ~c`XYWcW`UĥY`Yci ĥfcg`dfcXi ĥgž a UğĤĀ Vfa ĩ ĥ]nĤXcgdUfUcVĥb, ~c`XYĤcVfca]bŪž a `Wā dcgĥc `Wā` dfcdf]YXUXgXi f ĥ]Wg`Yj UğX]UĤXcfUğ" ĖcbĥYXU]a U] Yā . PPI Z[gVfQ



Cacau

)"5bĥ]WgXYd`UbĤUğg dY]cfYğĭ `dcXĀā gYf`cVĥXcgUdLfĥf`XY5`U manda violaceae (Apocynaceae), Croton sellowii (Euphorbiaceae), Capraria V]ŪcfUĥGWfcd\i `Uf]UWUMžYbĥYci ĥfUğ

*"9bn]a UğXYcf]] Yā j Y]YUĪ Yā VcfUUa Ucf]UĤUğYbn]a Uğ]bXĀ gĥf]U]nU das sejam de origem animal algumas podem ser obtidas de plantas. Como, por exemplo, a diastase (sementes germinadas de cevada, Hordeum vulgare @"!`DcUWUMž Ybn]a Uğ dfcĥc`ĥ]Wg`Wā` dfcdf]YXUXg`Ubĥ!\`Yā ĥb]Wg` fĭŪ]i YĥfUğVfU] Uğž:]Wg`gd"!`A cfUWUM`Yi fUğYfĭZ]`c!`X]dcfWĭ`ci` Īa Ub]U` Īž7Ub]U]U]YbgZcfa]g!`: UWUMĤ"

G-c`]b•a YfUğUgd`UbĤUgi ĥ]nĤUĤgbUa YX]WbUdcdi `UžWbĥi Xc`bYā` ĥcXUğĥj YĤĀ`gYĭ`fYU`YZ]ĥc`ĥgUxc`V]bĥ]ŪMā YbĥY`C`i`g`:\]gU]W`XY` Vĥĥg`d`UbĤUğ]UbXUei Yb-c`g]]b]Ūei Yā`VĥĥnĤdcXĀ`XUf`d]gUğg`VY` cgYZ]ĥcĥfUd.i.ĥ]Wg`XgUgd`UbĤUğ

%`D`UbĤUğUžcXgUğUğĭ`g`dcgĤĀ`YbĥYUğYgd]V]g`Wb`V]XUğWā`c`Ī`Wĥ!` UŪ`fĥbYā`cdU]a`U]f`YbgYĭ`6]]bc]UWUMY/9fĥĥ`fcl`nĭ`a`j`UWb]Zc`]i`a`ž`9`"Wĥ`UŪ`9fĥĥ`fcl`m`UWU/Dci`ĥf]]Uc`Vĥ`g]Z`]UžUdĥUWUMY/Hf]W]]Ugdž` A`Y]UWUMY/GWbXU]UŪcf]Vi`bXU!`5`dc`Wb`UWUMž`UbXUei`Y`d`Yĥb`WbXc` Ua`Uğ`XY`i`a`UZĀ`‡]ŪžĤĀ`YgUdfcdf]YXUXY`G`bYā`cdU]a`U]f`YbgYĭ` Bignoniaceae. Fonte da imagem: biologo.com.br]



UfcXgUWg

&"ÎWfcVÛ `î `Ygd]M]g XY'6]] bcb]UWU Y f7 n]V]g]U `gd"z`-UWfU XU gdd" Y
 NYm YfU gdd'Lg-c h]X]g]W]a c`Ubh!gZ]M]g YXYdi fU]j U]g`
 `Îei YfU dYX]Û `ci `Î Yfj Udca V]b\Û `fD\m]Ub]h]i g`b]fi f]z 9i d\cfV]U
 WU]LÎ `]b| Yf]X]U dYU dcdi `U`-c`bUZ`fa UXYWzzUW]X]U]g]y`g]f`YÛ]M]b]h`
 bc`h]fU]L]a Yb]h`XYW`W`cg]f]Y]b]U]g]Y]bc`h]fU]c`i`f]b]z]f]c`"
 ("ÎA Y`-c!X]!g-c!W]M]U]bc]Î`f]A`ca`cf]X]W]W]U]f]U]b]h]U]z`7i`f]W]V]U]W]U]LÎ`h]f]Y!
 padeira de frutos carnosos deiscentes amarelo-avermelhado. Em decocto
 f]i`g]U]K]U]Y]a`X]fa`U]c]g]Y]g`U]W]d]g`U]W]f]bc]g]U]Y]L]a`U]f]U]H]Y]a`U`-c`U]b]h]!
 \Y]a`b]h]W`U]c]b]h]X]U]j]a`U]Y]a`.h]f]V]U]j]i`U]g]j]a`"V]c]g]l]c]h]W]a`Q



PLANTAS ORNAMENTAIS

A Ugi a Uj YhXj]Xc {]fubXYf]ei YhUYXj YfgXUXYXd`Ub]h]g]Xc`6]f]U]z`
 YYfi a`d]U]g]W]a`]f]ub]XY]d]c]h]b]W]U`XY]Y]d`cf]U`-c`XY]d`Ub]h]g]c]f]b]L]a`Y]b]h]g]`
 9f]j`U]g]h]Y]d]U]X]Y]f]U]g]U]M`g]c]g]Y]z]f]c]f]Y]g]b]U]j`U]g]d]c]X]a`g]f]U]d]M]U]g]g]Y]a`d]f]Y]t]c`
 Y]g]f]h]W]b]c`d]U]g]U]j]g]a`c`XY]W]b]h]f]c]g]XY`f]X]b]g]Y]e]i`]b]h]U]g]Y]X]b]h]c`X]g]W]U]g]`
 9b]f]Y]U]g]a`c]b]c]W]h]Y]X`b]Y]U]g]X]Y]a`U]c]f]b]c]h]f]Y]X]U]X]Y]j`U]f]Y]X]U]X]Y]Y]g]d]f]!
 W]g]W]h]j`U]L]g]d]U]U]b]g]c]f]b]L]a`Y]b]h]U]g]c]i`W]a`Y]g]g]Y]d]c]h]b]W]U]z]d]c]X]a`c]g]W]U]f].
 %`C`f]W]X]U]M]U]Y]f]c]f]e]i`f]X]U]g]Y]a`]Y]f]U]L]Î`8`j`Y]f]g]U]g]Y]g]d]f]M]g]g]c`W]a`i`a`Y]b]h]`
 cultivadas em canteiros. Existem numerosas comunidades formadas por
 c]f]e]i`]X]U]E]c]g]e]i`Y]i`g]W]a`b`-c`g]a`Y]b]h]c`W]h]j`c`X]g]g]U]d`U]b]h]U]g]a`U]g]h]L]a`V]f]a`
 U]N]M]X]h]U`-c`XY]Y]g]d]f]M]g]d]U]f]U]c]V]h]b`-c`XY]j`U]f]Y]X]U]X]g]9a`V]c]f]U]g]g]c`g]Y]U`
 Z]l]c]z]a`i`]h]U]g]Y]g]d]f]M]g]X]Y]c]f]e]i`f]X]U]g]g]c]j`]g]c]g]U]g]Y]f]M]g]Y]a`V]Y]Y]U`
 a`Y]g]a`c`Y]a`g]Y]`Y]g]U]X]c`g]Y]j`U]Y]a`"5`[i`b]g]X]c]g]l`.b]Y]f]c]g]U]g]j]a`Y]i`!
 d`cf]U]X]c]g]g]c`.5]fi`b]X]b]U]z`7`U]h]Y]h]z`8`Y]b]X]c]V]i`a`Y]C`b]V]X]i`a`"O]U]H`
 h]Y]h]U]W]c]W]Y]b]g]g]":`c]b]h]X]U]j]a`U]Y]a`.PPW]g]j]W]U]h]f]Y]d]f]b]h]g]W]a`Q



Orchidaceae

&" 5fUWUYI` YggU f UZa †]UXc` I Ubh f]cI` ff bh i f]i a` gdd"z I Wa]] c!
b]b[i fa !dcXyI fB]YZZbVUW]Ua c YbLYj zf]UgYg]fVWgXYD\]cXybXcb`
i h]nXUgbUcfla YbU -c`df]bVUa YbhXYj]Xc UgY Ug]W6j Y]YUj c"
O UUXi a`gd": c bhYXU]a U] Ya . PPd`UbWfYWa Q



Araceae

' "6fca Y]UWUYI` Za †]UXgVfca f]UgY[f]UzgzUfa XUYYNj Y]YUj U
XYg Ugfcg]UgUdfYgbUW`cfU -c Y i V]UbhXYg Ug]bUcfYgMbVWg`9bfY
cg[. bYfcga Ugi h]nXcgg-c`5YWa Yz; i ma Ub]UYJ f]YgU

Ci hfUgZa †]UgXYa cbcWlg-c`i h]nXUgWa c`f]XUMUZ5a Ufnl
]XUMUZ5fYWMUYj zf]Ugci hfUg



9bfY Ug X]W]YX bYUgz`d`Ubhg`g W`Ybhgz`hfYdUXY]fUgz`UfVi ghj Ug
ci `YfVzVWgYXj Yfggzfj cfYgg-c`W]hj UXgdcf`g UgUcfYga U]nXUg`
5g]YfUWUZ5dcWbUWUY6]] bcb]UMUYg-c`Ugd`Ubhg`cfbLa YbUga Ug
comumente encontradas na natureza.

%5 gMUMUÏ Zã †]UXgã Uf[Uf]Xgfb]Xbggdž7\fn]ubhYa i a 'gdž
9i fmdg'gdž YbhY ci hfcg[.byfcgž[]fUgC]g'fk Y]Ubhi g'gd'L.Y Xz]Ug'
fB U']Ugd'L UdfYghã ']bÛcfYgMbW]g XY WfYg'j] Uğ'ei Yj ~c' XYgXY'c'
VfUBW'U' j]b\czdUg]bXc' dcf'Uhi "'5`fa' Xc'j Ucf'cfbLã YbhUžgã Ybhg'
XY[]fUgC]g'g-c i h']nUXgbUU]a YbhU'~c XYU]a UgXca fg]WgYZM]W'~c'
XYCEY' j Y]YU"'@ Uhb]Ugd'': cbHYXU]a U] Ya .G]a dgb'&S*Q



Asteraceae

&" 6[[bcb]UMUÏ ' fUZã †]UXY Xj Yfg'g hfydUX]fUg'cfbLã YbhUg'Wã '
ÛcfYg'XYWf'Uã UfYUžfcg]YVfUBW]g'Ya ']YU'fB ffU]XU]Ugdž7i gd]Xf]U
gdžã Ya cfUgdžYbhYci hfcg'5`fa' XYgf'UZã †]U]Uei U'dYfhbWã 'Ug'
j z]Ug'Yg]W]gXY]d. :fHUMi]Ugd'L"ã fj cfYbh]j UMW'UÛcfU'~cz'WUMM!
]g]Wã YbhYgã 'Z'`U] Ya ž'fj]g] Ua YbhYUã]fzj Y"'@]g]WgVi W]bUcf]U'
Fonte da imagem: Simpson 2006]



Bignoniaceae

9' b-c' b'cg' Ygei Y, La cg' Xlg' [fla']bYlg' YWdYfzWUgi' g' Xlg' bc' dUgU
[]ga c' 'Wa c' [fla' Uxcg' ci' '1 bWg/ XUj]]CE]Uf f]]U f]]Mcf]U La Urcb]Mz
B ma d\UMUY' 'Uc' 'UXc'z]]bXlg' Ybgzj Y' b'cg' 'UfX]bg' Uei zh]Wg'z' Uggja' 'Wa c'
Ug' l' hf]W'Uf]Ugdd' '< z' h'a Vfa' 'c' g'a VY]fc' f7']hcf]UzU]fW]]X]UbuZ' 'Uf] U
a Ybh'Ya dfY] Ux' bUUFcf]nU' ~c' XY'Wb'hcgi' fVubcg' 9b'Ua' z'g-c' j' zf]Ug'Ug'
d'Ub'Ug'z'Y' CE]Wg' YbuHj' Ug'z'W'UVY'YnUYgh]WY' dUgU']gh]W' f'Udfcj' Y]HUXU
pelo Homem no arranjo do ambiente. [Fonte da imagem: Simpson, 2006]



PLANTAS FORNECEDORAS DE MADEIRA E AFINS

5']i a Ug' Ygd]WYg' g-c' 'Yl' d'cfU'Xlg' ci' 'd'Ub'U'Xlg' dUfU'Uc'Vhb, ~c' XY'
a UX]fUdUfU'Wb'gfi, " Yg'z'Wb'ZW~c' XY'a CE]Yg'Y'ci' hfcg'dfc'X] hcg/U'fa'
XUc'Vhb, ~c' XY'Wi' 'cg'Y'ZM]W] ~c' XY'dU'd'f]g' 8 y']Xc' UY' hU' ~c' XY'g'wb!
h'c' UXUXY' a UX]fU'z'U']i a Ug' Ygd]WYg' Yg'~c' Y' dc'Xf'~c' 'Ybh'U' 'bU']g'U'XY'
Ygd]WYg'U'FCE]Ug'La' YU' UXlg'XY'Y' h]b, ~c' "Dcf']gg'z'h'cfb'Ug'Y'WU]j' Y'na' Ug'
]a' dcf]U'bh'c' Ygi' Xc' XU' h']nU' ~c' XY'g'U'g' d'Ub'U'g' d'U'f'U'ei' Yc' i' g' W'bg'Y'bh'Y'
XY'g'U'z'cb'Y'XY'a' U'h'f]U'd'f]a' Ub'~c' g'Y'Y'g' ch'Y'

9bh'Y'U'g'z'fj' cf'Y'g'Wa' 'a' UX]fU'•h' 'Yg'~c.
% 'I' A c' [bc']'f'Gk']Y'h]Ua' U'Kcd' m'U'z'A' Y]U'WU'U']' fi' h']n'U'X'U'b'U'Z'M]W] ~c'
XY'a' c'V]]z'f]c' 'U'bc'z'd'U'b'f]g'z'c' V'Y'hc'g'XY'U'X'c'f'bc'z'f]i' U'g'XY'W'W'c'z'La']b'U'X'g'z'
Ya' U'f'W] " Yg' 'Y' Yg'Y'bh'Y'ci' h'fc'g'v' Y'b'W'bh'U'X'U'X'Z'c'fa' U'X'g'W'bh'bi' U'X'g'XY'
c'g' 'Xc' 'A' f]]W'U'c' b'cf'Y'Xc' 6'f'U'g'z'cb'XY'U'f'Y'g'bh'La' UX]f'U'g'Wa' X]Z'f'Y'bh'g'
W'U'W'U'f]g']W'g' X]j']Xc' { 'j' U'f]U' ~c' 'La' V]Y'bh'U' " 9a' V'cf'U'g' U'Y' d'cf'U' ~c' g'Y'U'
f'Y' i' 'La' Y'bh'U' d'cf' 'Y'z'U'Y' h'U' ~c' 'Y']U' X'Y'g'Ua' UX]f'U' h'a' 'W'c'W'Xc' 'Ya'
f]g'W'U'W'bh'bi']X'U'X'U'Y'g']W'z'~c' 'Y'La' YU' UXUXY'Y' h]b, ~c' "

& 'I' V'U' b'U'z'V'U' b'U' 'f'Gw] b'cd'g'g' V'U'g']Y'bg'z' 5' b'U'W'X'U'W'U'U']' cf]]]b'z'f]U'
da caatinga baiana, fornece madeira extremamente dura usada sobretudo
para dormentes.

' "I' =d. I. 'ci' 'I' d'U' !X'U'W'U' 'f'U'W'U']U'g'd'z'6]] b'cb]U'W'U'U']' g' U'g' a' UX]f'U'g'
g-c' X] f]g'La' U'g'Y']a' di' h'f'Y'Y'z'g'f]j']b'Xc' bc' Z'M]W'XY'W'b'g'fi, " Y'gd'Y'U'X'g'

e estruturas externas, pontes, dormentes, tacos de bilhar e soallo.

(Ā A U fU bXī VŪ fA Ub]_f]U YUHĀ GUchUMUĀĪ dfcXi ni a UX]fU XY WcfU~c j Yfa Yc]j lj UUj Yfa Yc!dUfXWbHyWa Y Y YcbU]XUXj]c! zVMzi b]Zfa YZ]gZ dYgMzXi fUz Wa dUUY Y hfYa Lā YbHy fYZUzf]U { di hfYZ]~c YUc"i gUbc"i gUXUdUfUcVfUg Y hf bUg YgHUMzj]] UgZfW XY violino, entre outros.

DfU UdFcXi, ~c XYWi `cgY YdUdYzgc W'hj Ux]gYgd]WgXY9i W mlh gYD]bi gza UgZj cfzj Ygei UbXc Wa dUfUXg Wa ci hfUg W'h fUg Wa c UXc Ā gnUĪ fB [U Ygd]UbZ5 [U UMM"5 hf bUj Uggc Vi gMUG bcg fYgXi cg U fW Ug XU dFcXi, ~c XY WbUX!U i Wz WbU VU ci Ya [flā]YUg Wa i bgYbUYa VU VUf7Wfcd]UgdL

D@5B H5G'Hê L=75G

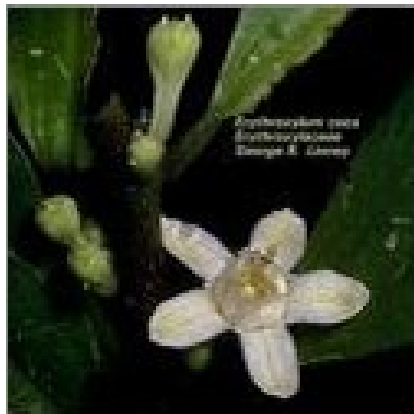
As plantas toxicas podem ter efeito negativo no Homem ou em outros U]a Ug'9a [YUzdcgg Ya g Vg]bW]gei YW glā Ybj YbYbLā Ybr'ci U]i a hdc XY]ff]U ~czi fh]U"9gg]g Vg]bW]gdcXā Ygf WbWb]fU das em certas partes da planta ou distribuir-se por toda ela. Podem causar Xg fV]cg fYgd]fUc]cg [Ufc]bhg]bUg Wbj i g YgZUi WbU" YgZUc]fc Ya Yga c dUfUXUMfXUW

9bfYUgd Ub]gUi Wb]fYbUgYg~c. %Ā A Uwb\Ū ci Ā A f]f UbŪ f7UbbU]gg]h] UZ7UbbUMUĀĪ Wc Z a c dfYdUfXc UdUhf XYZc \UgYŪcfYggW]f i gXc Y UfLā YbHyWa ŪbgXY cVhf gYbgU" YgUi Wb]fYbUgdcf U]i bg]bXj Xi cgXUgcV]XUXY"ŌcbHy XU]a U] Ya . Pp d\Ufa U] n"WQ



Maconha

&Î7cWĭ fĉfnĥfcl mĭ a `WwZ9fnĥfcl nUwUĭ ġ ŪgZc`Ūgġc'a Ūĥ!
[ŪŪgdcf']bX[ŪbŪgdŪUŪj]Ūf' ŪgYbġJ ~c' XYWbġJ c' YZca Y'v' ŪdŪfhf'
XŪgŪd' ŪbĤei YgY' ŪfŪ' ŪWwŪbŪZ' Xfc[Ū]bŪŪXŪYa' Zcfa ŪXY'dŪŪei Y'
WġgŪj Mĕ' Ya' dYgġŪg' XY' h' Xc' c' a i bXc" 5]bĥcl]W ~c' dcf' YgŪd' ŪbĤU'
hĥa' YZ]h' c' bY' fcdgei]WgZ' Wa c' Y' WŪ ~cZ' ŪbYg' h' gŪZ' Ūi WbŪ" Yg' fZ]h' c'
Vi gWxc' dYcġi ġ z[Ūg' XŪXfc[Ūz' h' ei]WfX]ŪZ' Yb' f' Yci h' c' g' Ūcbh' XŪ]a Ū
[Ya . PPg' Ūa Ūb! Ū ġfŪ]g' Wa " Ū Q



Coca

' "ÎNUĭ a Wĭ fB Ūi fŪg Ūj Yc' YbġZc' ŪbUwUĭ ĭ Ū]b[Yġc' XY'dŪfhg' XŪ
d' ŪbĤdcXĥa' Wġ ġf' h' ei]WfX]ŪZ' fi Vcf' bŪZ' WZ' Ū] h' Ū ~c' dg' Wa ch' fŪY'
Ūi WbŪ" Yg'

A Yġa c' d' ŪbĤġcfbŪa YbĤġci Ū]a YbĤWġgdcXĥa' Ūd' f' Yg' bĤ' h' ĥa' Vfa' .
propiedades intoxicantes, como por exemplo:

%' fĉfbŪa YbĤŪĭ 7ca] [c!b]b[i fa !dcXY' fB]ZbVwU] Ūg' " 5 fUwUĭ ġY'
]b[Y]XZ' Ūg' Ūbġġa Ūg' Ūi `Ūg' XY' cl ŪŪc' XY' W' Wĕ' i b]Xg' { Ū ~c' XY' i a Ū
ġ Vġh' bWŪ] d' X]WĤE] WdcXĥa' Wġ ġf']ff] h' Ū ~c' XŪa i WġŪM' W' Z' f' b[YZ'
Wbġf] , ~c' XŪ] `ch' YŪġŪ] Ūa c' fŪ' bŪZ' ŪŪXY' ġc' Wff' c' a' fX]W" Ūcbh' XŪ]
]a Ū Ya . PP_ Ūd']d' ŪbĤġg' Wa Q



7ca] [c!b]b[i fa !dcXY

&ftfbĬa YbhUĬ5 Ĭa UbXĬ ĬfĬ Ĭa UbXUWA Ufh]Wĕ5 dc\WbUMUĬ ĬcXĬg
Ug'dfHgXUd'UbHug-c'ĬE]Wg'dfĥ]W'Ufa Ybh'c'zĥĬ "5']b] Ygĥc' dcXY
WĬ g'f'XĬg'fV]cg[U]fc!]bhg]bUg]bhbgcgfj' a]Ĭcgzbi gYg'Wĕ]WĕUM
dominai e diarreia).

' "fU]a Ybh]WĕĬ 7UĬ Ĭ ĬfĬ bUMXĬ a c'W]XbhUYĕ5 bUMX]UMUĬ Ĭ g' Vgĥb!
Wĕg'c'Ycgĕ'cW]nXĬg'df]b]VdUa Ybh'bUgYa Ybh'Y#ci'bc'ĬM' dcXĬa'
WĬ g'f']ff]HU -c' gYUW]gU\UZcf']b] Yf]XUWĬ U

Ci'g-c'd'UbHgfYw\W]XĬa Ybh'i fh]Wbhg'zĥ]g'Wac.
%Ĭ 7UbgĬ, -cĬ f7b]XcgW'i gg'd'z9i d\cfV]UMUĬ D'UbHĕ\YfVZMUWa'
Uy'%'a' XYUĥ fĕZ'Wa' j'z]cg'Ygd]b\cg'Y'UM]g'Wbh'c' WbhUc'Wa' U
d'UbHUM gU'Yg' Yg']ff]HUj U'YU'f]]Mg'7ca c' U]ff]HU -c' U'WbhW]a YX!
UĬa Ybh'UdCg'c' WbhUczU]b] Ygĥc' f'fU'Ydci' W'dfcj' zj' Y' 'O' b]XcgW'i g'
gd'': cbh'XU]a U] Ya .PP'UUMĬ U'd'UbHĕ'Wac Q
&Ĭ Ĭi fh] U' Ĭi fh]Wgd'zĬ fh]MMUĬ Ĭ 5gĕ]a' Wac'bc' WbhUc'Wa' 7b]!
XcgW'i gg'd'zU'YU -c' XY'ff]HU -c' f]a YX]U'YXf]j U'X'Y'Z'U'cfYga YWb]W'
fhg]b\cgf]j]XcgXĬgf]V] XcgUd'UbHLYei ĩa]W'f]g' Vgĥ]b]Wĕ]g' fh]Wbhg'g'
O fh]Wac'Ya V'U'UMU'': cbh'XU]a U] Ya .PP'ĥ' Xcg'V'Yd'UbHĕ'g'YQ

PLANTAS DANINHAS

Ci'f'c'j' Ucf'b]U]j c'Uf]M] Xc' {gd'UbHĕ'dYc' < ca Ya' f'Lei YX]XĬg'
d'UbHĕ' Wbg]XfUXĬg' Xb]b\Ug' O]bZ]g'UbHĕ'g'Y' XĬg' YĬ C]Wĕ']b] U'cfUg'
9a VcfUg'YUWa' i a' U'WbZ] g-c' Ybh'Ycg'Xc'g]h'fa cgh'UĬa' XY'Ug'Y'Wĕ'g'
XĬg]bhcg'Ĭ a' Ud'UbH'f' Wbg]XfUXU'Xb]b\Uei UbXc' dfYg'bh' XY'Z'fa U
]bXĬg'YU'Ya' d'UbH' "Yg'Wbh]fcg'YĬa' V]Ybhĕ'Ya' [YUz'fi a' U'X]U'], -c'
a' U'g'U' f]W'U' 5' XĬg]bU' -c' XY' i a' U'Ygd'V]Y'Wac' YĬ C]W]]b] U'cfU'f'XY'
Wb\c' YW' C]W]Ya' U'g'YU'cfU'Xc'zĬh'YbXc' U' i g-c' { XĬgf]V]], -c' [Yc']fz'U'W'
cf]]bU'X'U'gd'V]Y'g' U]bhfc'XĬ , -c' Ya' Ĭa' V]Ybh'U]Yb]]YbUYg' U]bh]Zf. b]WU
bUMWbh]i]X'Y'g'U' X'j' Y'Xc' V]W' X'j']X'U'X'g'Ygd'V]Y'g'Y'g'Y'bcj'c' Ĭa' V]Ybh'
5ei]Z'fU'f'Ya' cg'U'Yb'U'g'XĬgd'UbHĕ'Xb]b\Ug' O]bZ]g'UbHĕ'g'9gĥc']bW'g'g'
bYgg'Y' fi dc'zYgd'V]Y'g'U]j U'g'Y]bhfc'XĬ n]XĬg'XYU']U'gd'UbHĕ'Xc' [fi dc' XĬg'
dh]f]Xĕ]Hĕ'g'YU']cg'Y'fa U'g'Wac' \zV]Ĭc' \YfVz'Wcz'U'f'V]i g]j'c'ci' 'U'V'CE'c'

9bh'f'U'g'ZĬa' f]U'g'Wac' a' U'cf'b'•a' Yc' XY'gd'V]Y'g'Wbg]XfUXĬg'Xb]b\Ug'
Ygĥc' 5g'f'UMU'Z'c'UMU'Y': U'UMU'f]bh]f'U'Xc' U'gh' g'g' VZĬa' f]U'g'G]!

uem alguns exemplos:

"% "fU]Wac' !a]•XcĬ' fB i [i Yĥ]UZ' fZ' fUMU'Z' 5bc'bUMUĬĬ' f' i a' Ud'UbH'
U'f'V]i g]j' U'z'U]j U'Xc'g'V'f'U'Xc'g'V'U'g] Y'fcg'Y'f'Wbg]XfUXU'Xb]b\U'Ya' z'f'U'g'
XY'dU]U' Ya' X'bhfc' X'Y'g'Y'V]ca' U' O'ch'U'ei] U'XĬg'W'd]b]V]U'Ybh'Y]bh]f'Y'g'g'
U'f'W'U'g'Y'W' C]W]g'z'Ud'UbH'Y'g'z' h'bh'U'Xc' f'Y'ca' U'f'g'Y' Ĭa' V]Ybh'v'c'
dfc'W'g'g' XY'f]Y' Yb'YU' -c' XY'z'f'U'gd'Y'f'f'V'U'XĬg'Q' c'W]g'cbUa' Ybh'i h]]n'XU'
na medicina popular.
&Ĭ U']c'Xc'!X]g'XĬW]a' Y]f'ĕ'Y]h'fcz'Ub'•U'Ĭ f7U'ch'fd]g'dfc'W'U'ĕ5 dc'WĬ

bUWU! 5 gVd]Xc]XUŁĪ 'fi a UYgd]Mg'dYbYUfVi ghj Łzdfcj U] Ya Ybh' cf][]bz]UXUabX]UY]bhfcXi n]XUYbUi fU]nXUUbUgZfYUgZf]XUgXU5a ff]W Hcd]W"v' i a U]bZg]Ubh'XYX]Z]W'YffUX]W ~c/Ha Vfa 'dcXYgf'i gXU bUa YX]WBUWgYfU' QggUd'UbUHa Vfa 'dcXYgf' WbgXfUXU] Qf]W]bj UgcfUQOcbh'XU]a U] Ya .PP'Wa a cbg'k]ja YX]Ucf[Q



U]cX-c!X]gXU

' "Ī WffUd]Wc!X]dcbh'Z]WffUd]Wc!X]U]i \Ū fB]X]bgd]cgZ6" g VUHf! bUgZ5ghfUMUŁĪ 'Ygd]Mg' \YVzVMgZdf' g Ufzd]XUdfcdU] U ~c' YdfY! gYb, UXYbYa Urc]Xg'cg]YX]f]cgXUd'UbUdfY' X]Wā 'c X]gYbj c] j]a Ybr' XcgW'hj UfYgUfa 'XYgfYa]bX]gYzj Ygdcf'dfcXi n]fYa Zi hcgUf]g]UXcg aderentes (o carrapicho).

("Ī i b\UXY! [Urczi b\UXYa cfV] cĭ fA UŁX]YbUi b[]gW]z6][bcb]UMUŁĪ Ī 'fi a UhfYdUX]fUei Yā VcfUgYUi h]nXUWā c'cfblā YbhUf]dcgg]]ŪcfYg Uā UfYUg]]g]cg]YbUa YX]WBUdcdi 'Ufz]cfbUgY]bX]gYzj Y'Ya 'dca UfYgZ dcf' Wf]f' hcXUUWdUXUgZfj cfYgZdfY' X]WbXc' U]bhbgXUXY' i a]bcgU Y X]gYbj c] j]a Ybr' Xcg fUā cZ] Wā dfca YbXc' UdfcXi , ~c" Ocbh' XU]a U] Ya .PP'VU] U]]Wā "VfQ



unha-de-gato

) "Î Y] WbŪ f@Y WbU Y] WwW\UŁ: UUMUY! A ja cgc]XUM.Î d'UbH U
 FVCEU cf][]bz]U XU 5i gfz]U": c]]bfcXi n]XU Wa 'Ubğ Zc ffU Y]fcg'Y
 sombreamento de pastagens. Mas conseguiu se reproduzir facilmente sem
 UbYWgg]XUXY'a UbYc \i a Ubc hcfbUbXc!gY]bXg'zj Y'YXYX]ZW'Wb!
 hfc Y'hca UbXc j zf]Ug'zfYUgX]gfY] Y'g]hcd]W]g'Xc d'Ug'
 *"'Î VŁei]zf]Ū fBfUW]U]Ugd" DcUMUM.Î j zf]Ug Ygd]VYg'Xc [. bYfcz
 cf][]bz]Ug'XUã Z]WZcfUã]bfcXi n]XUg'bc 6fUg' Wa c Zc ffU Y]fUg'a Uğ
 YgWUfUã X]g'zfYUg'XYW'hj c Y]bZg'UfUã YXU]UWã UğW'hi fUg'
 + "Î H]f]WZ'W]ja !XUx'z'1 bWUfca z]W] f7m]fi g'fci bXi g'z7m]fUMUM.
 Î f'Ud'UbH]U]b\Ua UğX]gg'Ya]bXU'Ya UğbcV]U'Xc a i bXc'z'Wb'bfUW
 Ya h'Xc'g'cg'h'c'g'XY'g'c'z'W]a UğYW'hi fUg'Wa UY W. ~c XYW'hi fUg'XY
 Ufcen]bi bXUc" 5`fa XYU'Uã Ybh' Wa dY]h] UŁ Y YVWYZ]h']b]V]U]c'
 g'VYU'V'f'U ~c XYU]i a UğW'hi fUg'g' UYf'U'X]W ~c f'ei Uğ]a d'cg] Y"
 C'cbh'XU]a U] Ya .PP'Wa a cbg'k]a YX]U'cf] Q



Tiririca

, "Î Y]j UX]d'Ug'U]b\c] fDg]h]UWb'hi g'gd" YH]dcXU]b'hi g'gd"z@c'fUbh U
 WU]D\cfUX]b'X'cb'g'd'z'Cbh]UUMUM.Î g'c d'UbH]g\Ya]d'Uf]g]h]g'z'fcd]U U
 X]g'dcf'g'Ya Ybh'g'8 ja]bi]UdfcXi , ~c XUz]f cfYci U'Vi g'c W'hj U'Xc dcf
 g'Udfcd]U]f'XYg Uğ]j U'Vi h'z'c'X]b'Xc'z'U]C]U]i bg'Ubc'g'Y z! U'Ua cfh'Y
 9a VcfUYg'YUW'FUU]j U]YXUXY'XYi h]j'nU" Yg'X]g'd'UbH]g'Yg]Ug'b-c'
 g'Y'Yb'W'f'Uã b'Ug']b\Ug'XYi g'c U'Wã U'U'cbh]U'U'g' J zf]cg'ci h'fcg'j U'cfYg'
 Y'Wb' a]Wg'Y'W'hi fUg'dcX'Ya g'f' U]bXU'W'U'X'c'g' {g'd'UbH]g' C i g'c X]g'
 a Yga Uğ'Ya 'a U]Zg'U" Yg'W'hi fUg'z'Wa c'Ya f]h] Uğ'fY]]c'g'g'Y'W'Wb, Uğ
 XY'g'f'h'Y'U'h'f'z'b'U'W'b'Z'W-c XY'U'h]g'U'U'c'g'W'g]U'g'Y'ci h'fcg'U'h]Z'U'c'g'g-c'
 U'Y'U'g'ci h'fcg'Y] Ya d'cg'XY'Wa c'c' < ca Ya 'Yg'z']b]ha Uã Ybh']U'Xc' U
 esses organismos.

7CB 7@I GÈC

5`ja dcfh]b]WYWb' a]WXcgfYMFgg'cVhXcg'Xc'fY]bc'j Y]YU'f]b!
 Y[zj Y"C `ca Ya `XdYbXZdfUg Ug'VY]j .b]WYVYa `YgufzXYfYMFgg'
 bU] fUgZ] fUbxY'dlfhXcgei Ug'dfcj . a zX]fYUci]bX]fYhà YbhZXY'd'UbHg'
 5`Uj]XLYWb' a]Wj c`hXU]`dfcX] , ~c XYfYMFgg'YWb' a]Wg] Y] YUg'
 fYgdUbhc]YXYX]a Ybg' YgX]U]a YbhUdfYbgj Yg{ Wà dfYbg-c`i a Ub'
 O conhecimento geral do que se explora comercialmente e como se transfor-
 a Uà `cgfYMFgg'dfcj Yb]bHg'Xg'd'UbHg'f]a dcfh]b]WYUc V]GÈC] cZUÀ`
 Xyei YYYdcg]X]Uc] UfZYa`g UUh]]XLYdfcUgg]cbUzWa`Yg]WU]g]Ug'XY'
 ci hUg'zfYg'Wà c'cgU'f` bca cgZcg'Yb] Yb\Y]fcgZcg'Zfa U]Wg'YWw`
]a dcfh]b]W`Ya Vfu`hà Vfa`ei YZXYi a`a cXc`] YUzcg'Wfgg'XYV]c`c[]U
 ha`hU]W]cbUa Ybh] a Uzfh]WbchU`~c UWX a]WZdc] WUhb, ~c gYbXc`
 X]XUcg'Ug]WcgUd`]WXcgXUW]b]W'v`Ugc`i hà YbhYg]i fc`Ufa Uf]gY'
 ei YU]a dcfh]b]W]Xc`Ygi Xc`XUvch]b]WYWb' a]Wbi bWZc]h`c`[fUbxZ'
 bi a`Wfg`dUfU]GÈC]cgZWa`c`fbcgX]Ug'U] Ug'5`< i a Ub]XLYYbZ]YbU'
 `c`YXYgUcga i]h`gff]cgZei Yd" Ya`Ya`f]gW'Ug`UdfGÈC]Ug'VY]j .b]WU'
 Wà c`Ygd]WYV]c`GÈC]W`Hà Ug'Wà c`Ucf]] Ya`Xg'd'UbHg'W'hj U]Ug'g`U
 V]c]Yc]fUUY]c`i , ~cZ]g]W]gg]Y] U`YbgYU]cbca]Wà YbhYfYU]cbU]g'
 {gW'h]fUg]hU]W]cbUgZa`Y`cflà Ybhc`[Yb]h]WZdfc]flà Ug'XYWb]g]Y]U`~c`
 Xc`dUf]a`b]c`[Yb]h]W`Xg'd'UbHg'XY]j Ucf`YWb' a]WZUWbhf]M] , ~c`
 XU]ca Ugg]UdUfUUgc`i , ~c`XYdfcV`Ya`Ug'fYU]cbU]cgUc`i g`XU]bYf]]Uz'
 Ufa`XYci hfcgUgg`bhcgZc`zfYg]bUg'ei Ug'UUh`U`~c`Xc`V]GÈC]c`hà`bU'
 U]U]XLYi a U]a dcfh]b]W]WYg]WbhZa`YfWbXc`Ybhc`a Ucf`df]cf]XLY'
 bUgU`Ug'XY6ch]b]W9Wb' a]W



RESUMO

6ch b]WU Wb' a]Wfc Ygh Xc X]gd'Ub]gZ b] c]g]U] U]gYVUW]f]U]gei Y direta ou indiretamente, positiva ou negativamente afetam o Homem, sua g'VY] j] . b]WZ]YUa Ubi hb, ~c Xc]a V]bhY'8 U]g& S"SSS Ygd]V]g]XYd'Ub]g X]gh]M] X]gYa (*SZA]]U]g]d]Yb]gZ]hYa c]gi g']a d'c XY" SS Ygd]V]g]XY &SZA]]U]g]b]g]]b\U]g]XYdfcXi, ~c" HcX]g]U]gd]fh]g]X]gd'Ub]g]dcX]a g]f' i h]]n]X]g]Wa c' C]]-cgj Y] YU]h] cg]ff]U]n]g]W] YYZc \U]g]Yf]d]fcXi h] cg] f]U]cf]Y]g]Z]i h]c]g]"5 g]Z]a]]U]g]a U]g]ja d]cf]h]b]h]g]Z]c]fb]W]X]c]f]U]g]XYU]ja Yb]h]c]g] podem ser citadas: Poaceae (cereais); Fabaceae (legumes); Annonaceae, Myrtaceae, Rutaceae (frutas); Apiaceae (verduras) e Solanaceae (frutas e j Y]X] f]U]g]"J z]f]U]g]d'Ub]g]U]fa U]h]b]a C]E]c]g]Y]g]g]b]W]U]g]Ya V]Wi U]g]Y]gd]V]U]g] Wa c'a Y]U]C]E]h]c]g]g]W]b]X]z]f]c]g]Z]g]h]g]dcX]a d]c]g]g]]f] U]ca U]U]f]U]X]j Y'f]X]]b]h]Y]g]g]b]U]]b]X]g]f]U]X]Y]d]Y]Z]a U]f]U]Y]W]ga f]h]W]g]Y]#ci d]f]c]d]f]Y]X]U]X]g]a Y] X]V]b]U]g]C i g' XYd'Ub]g]d]f]U]f]ca U]h]n]U ~c Y]W]b]h]c Y]Y]W]U]X]c]g]X]j Y]g]g] a U]Y]gei Y]U]Z]h]a U]g]U]XY'i a U]b]U]f]i a U]d]f]z]h]W]h]c U]b]h] U]Z]U]d]c]b]c XY d]f]c]j U]j Ya Y]b]h]U]b]h]W]X]f'c Y]g]z]]c XY]V]j]n]U ~c"5 f]lei Y]n]U]C]f]h]]W]X]c' 6f]U]g]d]Y]fa]h]Y]ei Yc d]U]g]g]Y]Ui a X]c]ga U]c]f]Y]g]d]fcXi h]c]f]Y]g]XY]C]E]c]g]Y]g]g]b] W]U]g]Y]X]Y]g]i g]Wa d]c]b]Y]b]h]g]di f]c]g]"5 a X]V]b]U]d]c]di U]f]V]U]g]Y]f]U]Z]h]a V]fa X]j]X]c U: c]f]U]Y]g]ca U]X]U{ 7i h] f]U]X]j Y]g]U]W]X]Z]f]V]g]h]b]h]f]W]A U]g]i a U] j Y]n]X]j]X]c { [f]U]b]X]Y]f]lei Y]n]U]Y]X]j Y]f]g]X]U]X]Y]d'Ub]g]X]c' 6f]U]g]Z]Y]Y]f]i a d]U]g]Wa [f]U]b]X]Y]d]c]h]b]W]U XY]Y]i d]c]f]U ~c XYd'Ub]g]c]f]b]a Y]b]U]g]"9f]j U]g] h]Y]d]U]X]Y]f]U]g]U]f]Vi g]c]g]Y]z]f] c]f]Y]g]b]U]h]j U]g]dcX]a g]f' U]d]]W]X]g]g]a d]f]Y]]c' Y]g]h]f]W]b]c d]U]g]U]]ga c' XY]W]b]h]f]c]g]XY'f]X]b]g]Y]ei]b]h]U]g]Y]X]b]h]c X]g]W]U]g]"5 [i a U]g]Y]gd]V]U]g]g]c Y]i d]c]f]U]X]g]ci d'Ub]h]X]g]d]f]U]c]V]h]b, ~c XYa U]X]U]f]U] d]f]U]W]b]g]fi, " Y]g]Z]W]b]Z]W]c XYa C]E]Y]g]Y]ci h]c]g]d]fcXi h]c]g]U]fa X]U]c]V]h]b! , ~c XY]W]i c]g]Y]Z]W]f]W] ~c XY]d]U]Y]g]"8 Y]]X]c { Y]i h]U ~c XY]g]W]b]h]c U]X] XY]a U]X]U]f]U]]i a U]g]Y]gd]V]U]g]Y]g]h]c Y]d]c]X]f]c' Y]b]h]U]f' b]U]]g]U]X]Y]Y]gd]V]U]g] U]f]V]C]E]Y]g]U]a Y]U]U]X]g]XY]Y]h]b, ~c" D]c]f]]g]g]z]h]c]f]b]U]g]Y]W]X]j Y]n]a U]g]ja d]cf]h]b]h]Y] c' Y]gh] X]c X]U]i h]]n]U ~c XY]g]g]d'Ub]g]d]f]U]ei Y]c i g' W]b]g]V]b]h]Y]X]g]Z]c]b]h]Y XY]a U]h]f]U]d]f]a U]b]c' g]Y]g]c]h]"5 g]d'Ub]h]g]h]C]E]W]g]dcX]a h]f' Y]Z]h]c b]Y] U] h]j c]b]c < ca Y]a]ci Y]a]ci h]c]g]U]b]a U]g]"9a [Y]f]U]Z]d]c]g]g] Y]a g] V]g]h]b]W]U]gei Y] W]]g]a Y]b] Y]b]b]a Y]b]h]c'ci U]]i a h]dc XY]f]f]h]U] ~c]z]i f]h]]U]9]g]g]g]g] V]g]h]b]W]U]g] podem estar concentradas em certas partes da planta ou distribuir-se por h]c]X]U]Y]U]d]c]X]a W]]g]f' X]g]h]f]V]c]g]f]Y]g]]f]U]C]E]c]g]Z] [U]g]f]c]]b]h]g]h]b]U]g]Z]W]b]i '! g' Y]g]Z]U]i V]b]U]" Y]g]Z]U]c]f]h]c' Y]a Y]ga c' d]f]U]X]U]W]X]U]W] C]i h]c' j U]c]f' b]Y] U]h]j c' U]f]i]X]c { g]d'Ub]h]g]d]Y]c']ca Y]a f]U]ei Y]Y]X]g]d'Ub]h]g]W]b]g]X]f]U]X]g]X]U]b]]U]g] Q]b]Z]g]h]b]h]g]Y]X]g]Y] C]E]W]g]h]j U]c]f]U]g]"9a V]c]f]U]g]Y]U]W]a i a U]W]b]Z]g]c' Y]b]h]Y] c]g]X]c]g]h]f]a c]g]Z]U]a X]U]g]Y]W]c]X]g]h]c]g]I a U]d'Ub]h]U]f]W]b]g]X]f]U]X]U]b]]U]ei U]b]X]c' d]f]Y]g]h]Y]X]Z]f]a U]]b]X]g]Y]U]X]Y]a d'Ub]h]U]" Y]g]Z]W]b]h]f]c]g]Y]U]a V]]b]h]g]Ya [Y]f]U]Z]f]i a U]X]U]b], ~c' a U]g]U]f]W]U

ATIVIDADES

%7]HYI Ya d'cgXYd'Uhg'i h]n]XgbUU]a YbU]~c`i a UbUYgZa f]Ug' Vch]b]Wg'Uei YdYfbWã "

&7]HYI Ya d'cgXYd'Uhg'a X]WbUg'YUgZa f]Ug'Uei YdYfbWã "

' ': UUi a Udyei]gU]ã i a 'a YfWc' d]E]a c { g U]Wg'c VYUg'd'Uhg' ornamentais comercializadas. Quais as plantas mais comercializadas? Quais d]fhg'X]g'd'Uhg'g-c]j YbX]X]g3



F9: 9Fâ B 7=5G

: 9FFÈCž>9"A "%-- "**Fruticultura Tropical**. Barbosa & Xavier, LDA. KISSMAN, K.G.; GROTH, D. 1999. **Plantas Infestantes e Nocivas** tomo I, II, III"&X"65G "G-c DU`c`Ì`GD

LORENZI, H.; BACHER, L.; LACERDA, M.; SARTORI, S. 2006. **Fru-** Hg'6fUg] Y]fUg'Y9]E]Wg'7i`h] U]X]g'(de consumo in natura). Instituto D'Uhf]i a žB c] UC X]ggU`GD

LORENZI, H.; SOUZA, H. M. 2001. **Plantas ornamentais do Brasil**: ar- Vi g]j Ug`YfVzWg'YfYdU]fUg` X"=bg]h] lc D'Uhf]i a "B c] UC X]ggU`GD

LORENZI, H. 2001. ã f] cfYg'6fUg] Y]fUg` a Ubi UXY]Xbh]U]W~c YW]h] c` XYd'Uhg'UfV]E]g'bU]h] U]g'Xc`6fUg]žJc`ž=Y==`bg]h] lc D'Uhf]i a " B c] UC X]ggU`GD

LORENZI, H. 2008. **Plantas Daninhas do Basil**: h]fYg'fYg'Z]ei zh]Wgž d]fUg]h]g'Y]E]Wg'('X"=bg]h] lc D'Uhf]i a "B c] UC X]ggU`GD

A 5=5ž; "B" &S("7U]h]b[U`z]f] cfYg'YUf]i g]c]g'Yg' U]g'i h]X]X]g'8/ N` 7ca di h]~c; fzU]WY9X]h]c]fU`G-c DU`c`Ì`GD

RIZZINI, C.T. 1987. ã f] cfYg'Y'a UXY]fUg`•h]g'Xc`6fUg]` manual de X]bX]c`c[]U]V]U]g'Y]fU`&X"9X]h]c]fU9X] U]fX6~W]f"G-c DU`c`"

RIZZINI, C.T.; MORS, W.B. 1995. 6ch]b]WU9Wb' a]WU6fUg] Y]fU 2 YX"á a V]h]c`7i`h] fU`9X], "Yg`@H85"F]c XY`U]b]Y]f]c`Ì`F>"

G5AD5=Cž9]J"G6"/D5F9MBž: "; "7"/: = I 9=F`è 5ž>A"/`G5BHC G` Jr., A.G. (Eds.) 2005. 9gd]f]W]g'XU: `cfUB cfXYg]h]bUXY`=a dcf]h]b]WU 9Wb' a]WUdch]b]WU"5gg`V]U~c XYd'Uhg'Xc`B cfXYg]h]F]W]Z]I`D9" G7<I J5FHGA 5BžG`%+ "D'Uhg]j YbYbc]g]g'G]f]j]f`G#5`9X]h]c]fU`G-c` Paulo.

WICKENS, G.E. 2001. Economic Botany: principles and pratices. Kluwer 5W]X]ã]W]di V]g`Yf]g`f]]g] U]n]U~c d]U]W]U X]g]c]b]j Y`Ya .PP`h]d.##Vcc_g` google.com.br/books)