

Aula 9

5 GH9 F 8 95 G

META

Objetivo: identificar as características morfológicas e fisiológicas das plantas vasculares, com ênfase na diversidade e adaptação dos grupos.

OBJETIVOS

Identificar as principais características morfológicas e fisiológicas das plantas vasculares, com ênfase na diversidade e adaptação dos grupos.

DFv!F9EI -GHCG

Uso de recursos digitais para a identificação das plantas vasculares, com ênfase na diversidade e adaptação dos grupos.



(Fonte: <http://pt.wikipedia.org>)

=B HFC 8I uÈC

5g5gmfXUg'1 bhLa Ybh'Wa 'Ug'Fcg'XUg'Zfa Ua 'ia 'Xcg'WXcg
df]bVdUg'XUg'9i XjWh'X bUg' Bc' gghYa UXY'Wgg'UW ~c' 5D, ' =žc'
[fi dc' UdfYg'bhUg' dcfhY' dUfUc' a cbcU'Yhga cžYgg' g' dcfhY' f'XUc' dcf'
Ubz'lg'g'Vg'Ug'Ug'Ya 'XUc'ga c'YW'UfYg'fi XXY' Už&SS- E'

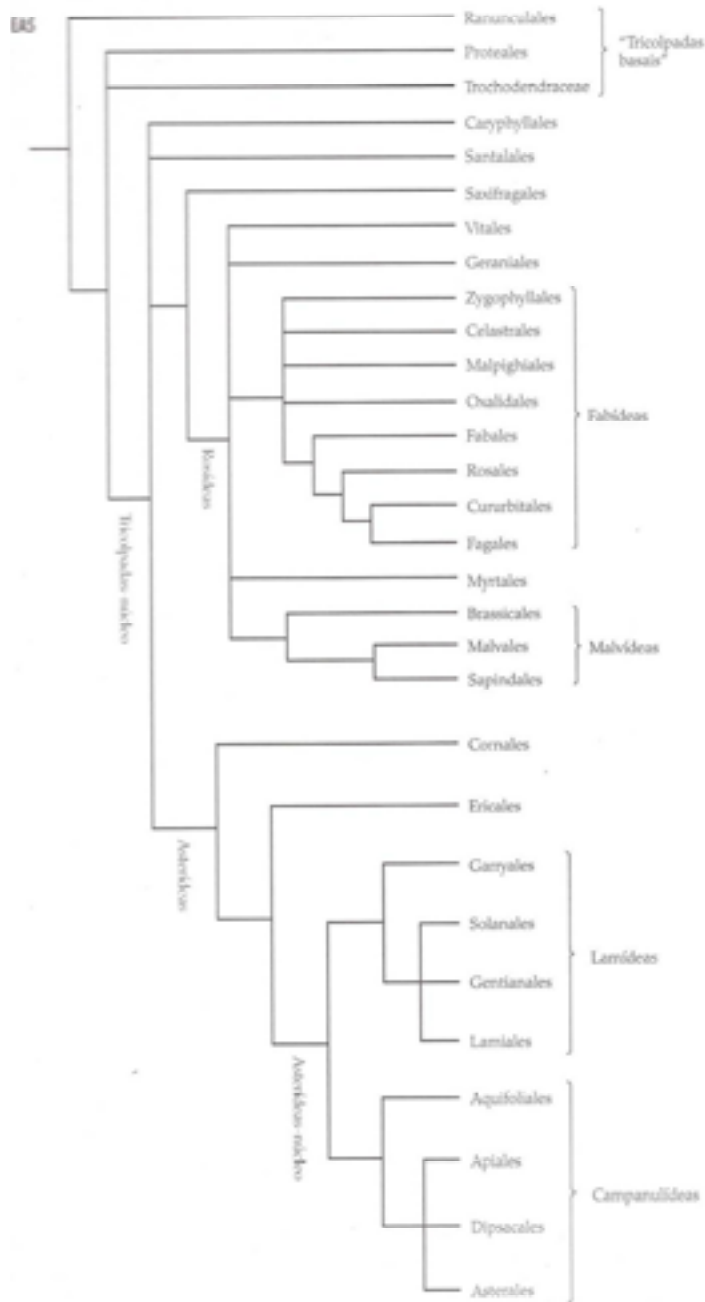
Grande parte dos membros desse clado pertenciam ao grupo denominado Asteridae no sistema Cronquist (1981) e Sympetaleae em sistemas de Wgg'UW ~c' a Ug'Ubh] cg' 5 gga 'Wa c' Ya 'Fcg'XUg'c' bca Y5gmfXUg' flgm'Xg'Ya]b[. g.Y df]a YU'YbUg'c bca YXc' WXc'za Ug'b-c' fi a 'bca Y formal como o 70X]c' bhfU'U'X'Y' B ca Y'W'hi fU6d]b]W' determina.

5' gbl'dca cfUa Ug'a U'Wbh'Xc' [fi dc' f'UWfc' U] Ua cd]fU'žei Y Ygz' dfYg'bh' bU] fUbXY' a Ucf]U'XUg'Za ž]Ug' dYf'bh'Wbh'g' Ug' 5gmfXUg' fl'a 'U] i bg'a Ya Vfcg' XY' Fcg'XUg' Wa c' 7i WfV]h'WUž' A ja cg' X'YUž' N]b]]V'fUYg' Y' Ybh' Ua Ybh' Yb'Wbh'Ug'Y' Ygd'f'Wg' [Ua cd]fU'ž' 9gi Xcg' U'c] Yb'f'Wg'h'a Vfa 'Wb'U'a Ua 'ei Ycg'Q'ei 'cg'h'bi]bi WUXcg'f'Wa 'Y! W, ~c' XY'7cfb'UW'Y'YU] i a Ug'd'Yei Yb'Ug'Za ž]Ug'z'Wa i a '•b]W'Y]bh]i! a Yb'c' a Ugg] c' fM W, ~c' { 'Df]a i 'UW'Y'YU] i a U'g'Za ž]Ug'ei Y'Xj Yf]]f'Ua ' b'U'U'g'Y'Xc' [fi dc'ž'Yb'Xcg'f'a UW'i 'Už'df'Yg'b, UXY]f]Xc' X'g'f'f'f'dyb'Q'X'g' g'Y'Wb'X'f]Ua Ybh' g' Vg'h] 'Xc' dcf' ci h'fcg' Wa d'cg'g'g'Wb'X'z'f]cg' Ya 'i a ' [f'U'X'Y'W'Xc' X'Y'5gmf'U'g'g'c' gbl'dca cfU'g'X'Y'5gmf'X'Y'f'U'd]b]ž&SS) E'

C WXc' XUg'5gmfXUg'Wa dfYb'XY'Xc'g] fi dc'g'df]b]VdUg' Y' UgmfXUg' =Y'Y' UgmfXUg' =fl'a Vfa 'Wb' \Y'W'Xc'Wa c' 'La 'XUg'Y'Wa d'ubi 'XUg' f'Yg'W'j Ua Ybh'z'U'fa 'X'g'g'Y'Xc'g'df]b]VdUg' [fi dc'g'z' X' U'g'cf'X'b'gei Yž' d'fcj U'Y' Ya Ybh'ž'g'c' [fi dc'g]f'a ~cg'Xcg'X'a Ug'a Ya Vfcg'XUg' 5gmfXUg' fl]i f'U%' 5' gY] i]fzj Y'Ya cg'U'g'cf'X'b'g'Y'Za ž]Ug']b'W' X'Ug'b'Y'g'g' [fi dc'g' Wa 'X'g'U'ei Y'd'f'U'U'ei Y'U'gei Y'g'c' a Ug'f'Y'd'f'Y'g'bh'U'j Ug'd'f'U'U'c'f'U'f'U'g'Y'f'U'



Asteridea pulverulenta
(Fonte: <http://www.porteouspark.org.au>)



:] [i fU% 7 Ux [fUa Ua cg fUx: Ug fYU" Yg\] dch fUg Xbfc XUg 5 ghyf pXYUg fUdUx: XY > XX et al., 2009)

Ordem Cornales

7cfbUYghĀ Uhc ġ dcfĥYdUfUc ġŷ Ā cbcŪYhgĀ c WbŪfa Uxc UfU ġġ
 XYghĀ XcgĀ c`WUfYgZUcfXĀ WĀ dfYbXYgġZĀ †ĴgZWĀ cWff. bWU
 bĴgfŷĴ` YghĀ dYfUĴġfĀ XXYhU`&SS- E'5 gYgdŷWgYbWbhfUĴgbc 6fUġ`
 g-c`Wĥĵ UĴġ`

Ordem Ericales

5bzĴgġXYgĤei . bWĴgXY8 B 5 WbŪfa ūĀ fbfYĀ Yf`YhU`z&SS&/Gc ĥġ
 YhU`z&SS/5`VUWYhU`z&SS%ĀzUdfYgYb, UXYXbĥgZc`ĴfYgh YcĴXgfi a U
 •bĴWbYfĵ i fUYbhfUbc XybĥYĥfa ĴbUYĀ Ā a`Wĵi nci`Ĵ`ĴXĀ`UcdWU
 XYWĴ U`9fĴWYgĴbW`Ĵ& ZĀ †ĴgYWfWXY-`() \$YgdŷWg`5 gdfĴbWĴUg
 ZĀ †Ĵg`5 WĴbĴXUMUfZĀ †ĴUxc`_Ĵk Ĵz`6UgĀ ĴbUMUfZĀ †ĴUXUĀ UĴU
 ġĀ Ĵj YfĴcb\Uz`7`YĥfUMUz`7mĴ`UMUz`9VbUMUfZĀ †ĴUxc`Wĵi`Y
 Xc`fUbcĴz`9fĴWUfZĀ †ĴUXUĴhUYĴz: ci ei ĴfĴUMUz`@WĥĥĴXUMU
 fZĀ †ĴUXUWġhU\UXc!dUfzZ`Xcg`Yei ĴĴVzgYXġġġdi WĴUgZDYbĥUd`mWU
 WUzZc`YĀ cbĴUMUfZĀ †ĴUXUWVfĴzDfĴa i`UMUfZĀ †ĴUXġdfĴa i`UgZ
 GffUWbĴUMUfZĀ †ĴUXY`Yfĵ UġWbĴĵ cfUgZGġdĥUMUfZĀ †ĴUxc`UWĴi`z
 Xc`ġdĥzXc`UfĴWĒXUĀ U`UfUbxĴ VUYXc`U i`UĴzGmĴWUfZĀ †ĴUxc`
 Vyb`c`YfĴz`GĀ d`c`WUz`H`YUMUfZĀ †ĴUXUWĀ fĴUYXc`Wz!dfYcE`
 8 YġUWĀ !ġYbUŪcfUfUġĴYfUGġdĥUMUfZĀ@WĥĥĴXUMU

LECYTHIDACEAE

fĴĀ`Ĵ. bYfcġWĀ`WfWXY`&`&ġdE`8 YġUWĀ !ġYcgĴ. bYfcġ9ġW!
 weilera (85 spp.); Gustavia (40 spp.), Barringtonia (40 spp.) e Lecythis (26
 ġdE`5 a d`ĴĀ YbhYXġfĴVĴ ĴĴgbcġfĴĴWgYgġWUĀ YbhYXĴ YfġġYĀ`
 ŪcfYġġ•a ĴĴġXU5a fĴWXC`G`!`Ĵi fU`&E`

DfYXcĀ ĴbUĥĀ YbhYzĴ cfYgZ`WġcbUĀ YbhYfVĴ ġġġci`ĴbUġ: c`Uġ
 [YfUĀ YbhYUĥfbĴYgġfUĴġZfĤei YbhĀ YbhYU fi dUĴgbc`zdĴWXCġ
 fĴĀ cg: `cfYgWĀ`Wfc`UXĴUd`fUĴZġĴĀ Yg`WbWYgWXCġġzĴc`ĴbZfcz
 WdYcg&*/Zi ĥc`dĴĴXc`

5`Ĵi a Uġ YgdŷWg`g-c`i ĥĴnUĴgWĀ c`cfbĴĀ YbhU`7ci fci dĴU[Ĵi ĴU
 bYbgġfUfWĒXUĀ UWĒzci ĥUġĥĀ ġ UġġĀ YbhġWĀ YġĴĴ YġzWĀ c`
 6Yfĥc`YĥUM`WgUfWġhU\UXc!dUfzE`HĴĀ VĴĀ`z`ĴbXW`-c`XYgdŷWg
 dUfUŪbġĀ UXĴfYfc`

SAPOTACEAE

fĴ`Ĵ. bYfcġWfWXY`%`SS`YgdŷWg`C`Wff. bWUdUbfcdĴWzYgġWU!
 a YbhYĀ ŪcfYġġ•a ĴĴgYXYVUĴ UġUĥĴi Xġ: Ĵi fU`&E`

DUĥġ Yb\cgġz`fVĴ ġĴĴ Uġci`fVcE`UġUdfYgYbĴĀ`UĥWzfcġWĀ`
 Xġġbj`cĴĴcgYUcb[UXcgY`zĥĴ`fUbw: c`UġUĥfbĴYgġfUĴġzĴġ
 j`YġġU fi dUĴgbc`zdĴWXCġfĴĀ cg: `cfYgVġġĴi Uġz`d`fUĴ(!, zWbUĴz
 YġĴĀ Yġ, !%`YĀ`%`WfWgZc`dġġġUġc`cVcgXUWfc`Ĵz;`cĴzĴc`ġ`dYfcz`

carpelos 2-muitos.

5 Zã f]UdfYgYbU[i a UgYgdVWgã i]lc i h]nUg bUZi hW h fU' abiu (Pouteria spp.) sapoti (Manilkara zapota), cainito roxo (Chrysophyllum Wb]lcE' A i]lcg[. bYfcg hã Vfa 'g-c' ja dcfhUhg Zcbhg XY zhl . [i hU dYfWUfDU lei ji a LYgdch] fA Ub] _UfUnUchUZ XghU • ha UgYcVfa 'U a Uhf]Udf]a UdUfUZ hY'c W]W]hZ[ca UXYa UgM''



Figura 2. Ordem Ericales: a-b. Flor e fruto de Manilkara zapota (sapoti), c. Flor de Gustavia augusta, X': fi lc XY6Yhc ~Y]UY WgUWU \UX!dUZ'

9I 5GH9F a8 95G' =ff@5A a8 95GL

9i Uhf]XUY =fY•bYUg cfXYbg; UfnWYg' c'UbUYg'; Ybh]UbUYg'Y Lamiales.

Ordem Solanales

9gUcfXYã f'WUMf]nUdUcf UdfYgYbU' Z' \UgUhfUg'UcfYgUM! bca cfZg'dYb]a YUg]g'gha cbYg'cj z]c'g'dYc' [YfUa Ybh]VWfdYU'' 5 'a Ucf]UXlg YgdVWgã hã 'UcYã U]bh]bcz Uggã 'Wa c' bUg' A nãUYg' =bW] Udfcl ja Uxã Ybh)' %SS'YgdVWg'Ua Ucf]UWgg'UWUYã 'Gc'UbU WUY7cbj c j i 'UMU' 5gci hUgZã f]Ug'g-c' Vã 'a Ybcggl b]UW]h] Ug' Hidroleaceae, Montiniaceae e Sphenocleaceae. Diferencia-se facilmente de Gentianales e da maioria das Lamiales pelas folhas alternas.

SOLANACEAE

f)S&[.byfcg'VWXY &) %\$ Ygd]Wg" 5a d'La YbhYXg]M]Xg'a Ug' La d'La YbhY YbWbhU]g' b'cg' h'c]Wg"; .byfcg' a Ug' fYdfYgYbhU]j' cg' Solanum (1400 spp.), Cestrum (175 spp.), Nicotiana (100 spp.)-Figura 3).

9fj Ug'ci' z]j' cfYg'g'ya' `zhM' YWa' UWc]Xg'fb]W]bU]h'cdUbc' Y'Yg' h'f]X]g'ei' YdcX'Ya' `gf'a' i]lc' h'c]Wg": c`Ug'U]h'fbUg'U'cfYg'dYbh'a' YfUg' U]m]bca' cfZ]g'a' cbcW]bUg'Yg]h'a' Yg'lg'gh'a' cbYg'g'g'j' Yng'gy'Uf]bXc' dcf' dcf'cg'f'c' `Ubi' a' E'cj' z]f'c' V]WfDYU'Wa' `C]i' `cg'fYU]j' La' YbhY'bi' a' Yfcg'g'

A' i] h'g'Ygd]Wg'g'c' i' g'U]g'U]b]X' g'f]UZ'fa' U]m]h'W]f]h'cd'Ug'd'Z'VYU' X'cbU'5' `i' a' U]gh'a' U]h' h'cf'X'Yb]f]W]Wg'Wa' c' B']W]h]U]b]U]f]i' a' c]z'8' U]i' fU' f]g'f]a' `b]c'E' `A' U]g'h'a' V'fa' `z' Ygd]Wg'ei' Y'z'fbY'Wa' `Z'i' h'cg'Wa' Yg]h' Yg'z' h]g'Wa' c' `7'U]g]Wa' `gd'" f]d]a' Ybh]z'd]a' Ybh'c]z'h'ca' U]Y'f'c' `Ubi' a' `n'Wd'! Y'g]Wa' E'z'V]f]b'YU'f'c' `Ubi' a' `a' Y'cb] Y'bUz' `j'c'f'c' `Ubi' a' `gd'f'z' U'fa' `X'g' h' V]f]W'cg'Wa' c' `C' `Ubi' a' `h' V]f'cg' a' `f]U]h'E'

CONVOLVULACEAE

f) [.byfcg'VWXY%-' \$Ygd]Wg": La]]U]La d'La YbhYXg]M]Xg' a Ug'Wa' a Ucf'c'Wff. b]W]Y'a' `f]M] `Yg'h'cd]Wg'Y'g' V]f'cd]Wg"; .byfcg' mais representativos Ipomoea (600 spp.), Convolvulus (250 spp.), Cuscuta (150 spp.), Jacquemontia (120 spp.)-Figura 3)

9a' [YfU' h'YdU]f]Ug'a' Ug' dcX'Ya' cg' YbWbhU' h'a' V'fa' `U]V]i' g'c'g'Y' z]j' cfYg'dYei' YbUg'Wa' `zhM'": c`Ug']bh]f]Ug'U]h'fbUg'g'ya' Yg]h'i' U]g'g'ya' [U]]b`Ug': `cfYg'dYbh'a' YfUg'X]W'a']Xg'a' cbcW]bUg' U]m]bca' cfZ]g' U

corola caracteristicamente com estrias evidentes no centro de W]U]d]h]U]f]i']W]U]L'U]b]X'c'W] `lg'gh'a' cbYg'g'g'j' Yg' U]h'f]bc'g' U'g' `c'V'cg' X]U'W'f'c' U' `c]j' z]f'c' g'dYfcz%&C]i' `cg'dcf' `C]M'c"

5 dfYgYbhU' ja dcf]h' b]W]U' Ywb' a]W]U]f]j' f]g' X]U' Ygd]Wg' Y'ci' h'f]Ug' Ygd]Wg' Wa' `U]d]W]~c' no setor ornamental como os [.byfcg' `U]W'i' Ya' cbh]Uz' `dc! moea, Dichondra.



Figura 3. Ordem Solanales: a. Flor de Jacquemontia, b. Batata-doce (Ipomoea batata), c. Flor de Solanum lycopersicum (tomate), d. Fruto de Capsicum (pimenta).

Ordem Gentianales

; YbhUBUYgfi a UcfXYa`a cbcU`fhWz g`hblXUdcfXUXcga c`YMU fYgYa cfZ`CEWgdcXbXc`gYfYWb\WXdYUgZ`UgcdcglUgga d`YgZ` bhMfUgWa`Ygtdi`UgZYei YbhYa YbhYfYi nXUgUi a U`b\UhfUbg YfgUz` W`fhfYg bUg U`Ug ci`bCg Y`bhfbLa YbhY`Uc`W`jW`-bW`j Fi VJUMUz` Loganiaceae, Gelsemiaceae, Gentianaceae e Apocynaceae (Rapini, 2005).

APOCYNACEAE

fl)) [.bYfcgZ`WVWXY`+SS`YgdYVg`C Wff.bWUDUbfcdjW`C g [.bYfcga Uggl[b]UMhj cgg-c. 5 gWdUgff& S`gddIzA UbXy]`UfSS`gddL` Figura 4)

ã fj cfYgZ`fM g`cZ` jUbUg Y`YfVzWUg`dfYyb, UXY`zhM z[YfUa YbhY` VUbw/Z`Ug[YfUa YbhY`cdcglUg` :`cfYgUMbca cfZUg`VbW`gfdUg`Y` VbW`dfHUg`WbUXg`YgLa Yg`lg`gha cbYgZ`f-cgXYdCEb`Ya`a`bUXg` ci`Z`fa UbXc`i a Ua UgUflic`b]Uz`bygg`z`UdfYyb, UXY`i a UYgfi h`fU` Xbca jBUUhfUbgUc`fYg`fngfi h`fUei Y`WbYMU`Ug`dc`b]Ug`XY`UbhfUg` adjacentes). Carpelos geralmente 2, unidos pelos estiletos e/ou estigmas gca YbhY`Ycj zfcgXg]brcgZ`bhMfLa YbhYZ`bXcY`Ya`5`La UbXU`cj zfc` g`dYfcz`Wa`d`UMbU`-c[YfUa YbhY`dUf]YUci U`jUf`CEi`cg&bi a Yfcg`g#` cj zfc` :` fi hcgZ``M`c`Wfbcg`ci`gWzVU`Uci Xfi dUgYa YbhYgUMU`Ug` Wa`hi`Z`gXYd.`cgffjWa`Ug`.

DfUjWa`YbhY`hcXUg`Ug`YgdYVg`XUZa`f]Ug`-cj YbYbcgUg`za`Uga`i`jUg` g-c`i`gUXg`Wa`c`Ubg`a`YXWbUg`f`fU`UfUbi`gzi`gUXU`WbhU`Y`Wa`jUz` FU`Z`j`jUzi`gUXU`WbhU`j`dYfYbg`-cz`Gfcd`Ubi`g`WbhU`Xc`Yb, Ug`WFXU`Wg`A`i`jUg`YgdYVg`g-c`i`gUXg`Wa`c`cfbLa`YbhUg`5`La`UbXUz`5a`gb]Uz` 5`gWdUgZ`B`Yfi`a`ft`UMU`X!`gUz`Yci`hUg`Ubg`fngl`ffUXYfUz`<`cnb`ffUcf` XY`WU`5`a`Ub]`UWfk`UbWfb]UgdYVg`gU`fi`a`UXUg`dci`Wg`YgdYVg`gei`Y` fWa`Yg`j`Y`"

RUBIACEAE

fl) S`[.bYfcgZ`WVWXY`-SSS`gdd` :`La`f]U7cg`cdc`jU` ;` .bYfcga`Ug` representativos: Psychotria (1500 spp.), Ixora (400 spp.), Palicourea (250 spp.), Borreria (150 spp.)-Figura 4

9fj UgUfzfi cfYgZ`Ya`dYfWa`Z`UgcdcglUg`fti`j`YhMUXU`Ygtdi`!`Ug]bhMfUg`UfYg` :`cfYgUMbca cfZUg`a`cbc`WbUg`YgLa`Yg`g`a`YfcgUcg` `c`VcgXUWfc`UYUhfbcg`UY`Yg`Yd]d`fUcg`C`j`zfc``bZfcz`V`c`W`Uz`Wa`` %&`a`i`hc`CEi`cg`#`CE`c` :` fi`hc`Xfi`dUz`Wd`g`Uz`{g`YnYg`Wfbcg`"

9Wbca`jWa`YbhY`UZa`f]Ug`YXg`UWUfj`fg`Xc`Wz`f`f`cZU`UfU`jW` Y7`fcVi`gU`LYXYg`dYVg`i`gUXg`Wa`c`cfbLa`YbhU` ;` UFXb]Ufi` UFX`b]Uz` Ixora, Hediotis etc.

Ordem Lamiales

G-c WFMf]nXLg dcf UdfYgbh]fYa `c`]] cggUMf]Xcgei YZ b]W6bLã ·
 Wa c`g Vg]b]WUg XYfygfj Ubc`i [Uf`Xc`Lã]Xczdcf`ZYei Ybhã Ybh`dfc!
 Xi n]fYa `Uj cb]g`*!`cl]] YbUMg`Y dcgg] #Ya `Ygh a Ucg`X]UW]Wg`dYc`
 Ya V]-c`Xc`hdc`cbU]fc]XYdYc`YbXcg]Yfa UWa `U]g]c]a]Mcd]U`
 C`a`cbcU`Y]ga`c`XUcfXã`f`WffcVcfUx`dcf`XUcga`c`YWUfYg`G-c`W!
 UMf]nXLghã Vfa`dYUdfYgb, UXY]f]Xc]XygfU`g]bhYa ; YgbY]UMU]Y
 [`]Wg]Xc]gZ]b]c]Wg]Ydf]b]d]Ua`YbhYdYUg`UcfYgWa`Wfc`U]`Lã`cd]f]U]Z
 [YfUa`YbhYdYbhã`YfUY]d]Wã`YbhYn]]`ca`cfZ]`@ã`]UYg]b]WYa`&&Zã`#
 `]Ug`W]W]X]Y&S`SSSYgd]W]g]g-c`Yg]Ug`5`Wbh`UMU]f]Zã`#]UX`UM]hc]Z6]]!
 bcb]UMU]f]Zã`#]UX`]d.`Iz6nV]XUMU]Z7UWc`Uf]UMU]Z`7Uf`Ya`Ubb]UMU]Z
 ; YgbY]UMU]Z@ã`]UMU]f]Zã`#]UXU`cf]Y`~YXc`UM]ã`Iz@Ybh]V`Uf]UMU]Z
 @]b]X]fb]UMU]ZA`Uf]mb]UMU]ZC`YUMU]f]Zã`#]UX]g]c`]j`Y]f]U]Z`fc`V]b]WU
 ceae, Paulowniaceae, Pedaliaceae, Phrymaceae, Plantaginaceae (includi as an-
 tigas Globulariaceae), Plocospermataceae, Schlegeliaceae, Scrophulariaceae
 f]Zã`#]UX]Y]g]M]Z`z]f]U]Z]G]`VUMU]Z]M]f]U]W]cb]X]UMU]Z]Y]f]V]b]UMU]f]Zã`#]U
 da verbenae) (Judd, et al., 2009; Rapini, 2005)



Figura 4. Ordem Gentianales: a-b. Flor e fruto de *Hancornia speciosa* (mangaba), c. Flor de *Alla-*
*da ub]Ugd]`ft]U]U]X]i]g]U]Z]X`":`cf`XY`<`cn]b]f]cf]X]i]W]U]E`"Y`":`cf`XY`=]cf]U]W]W]b]Y]U]f]]`cf]U]Z]Z`":`fi`hc`
 XY`7`c]Z]Z]U]f]z]V]W]f]W]Z]f]*

BIGNONIACEAE

f) ([.bYfcgVWXY, *S'gd": .bYfcga UgYdfYgYbHj cgHUYM JU f)SS'gdLz5 ffU|XUUA-S'gdLz-UWFUBXUf S'gdL"5a d'Ua YbhXjgfM # Xlg Ya 'fY|" Yg hcdjMg Yg VhcdjMgZ Wa 'dci Wg YgdVWg Ya 'Wa Ug hA dYUXcg'A Ucf Xj YfgXUYbU5a ffjWXC G "!: ||i fU) L

ã fj cYgZUfM gtcgci `jUbUgZc`Ug| YfUa YbhYcdcghUgci j YfHjMULgZ Wa dchgUg": `cYg'a cbcWjblgZ V|UHFUgZ gfdUg) ž d'fUg) ž WbUXg/ YgUa Yg (ž XjblA cg fXcg a UcfYgZ Xcg a YbcfYg: Y i a `YgUa |bc|cz Yd|dfUcg/WfdYcg&ZWbUXgZcj zfc g dYfczd'UMbU ~c U |UfzYg|| a U V|cVUXc/Œi `cgbi a Yfcg:g'8 |gWbYUfZfc | YfUa YbhYdfYgYbH": fi hc Ucb|UXcZVdg UgYdHjXUcW|XUgYa Ybhg| YfUa YbhYUWUULgZWa `Ug'a Ya VfbzWUgflbYa cWUgUgci `Ua V|UXgdcf hfjWa Ug`

5 |i a Ug YgdVWg ha `ja dcfh|bWUbc`gYcf`a UXY|Yfc`f7UdUY HUVM JUza UgU| fUBXYa UcfJUfi gXUWa c`cfblA YbhUZY "UWFUBXU fMfcVUz DnfcgM JU fMfCEX!g-c!x-ciz HUVM JU fMf.d.gLz 5 ffU|XUULž Spathodea, etc.

LAMIACEAE OU LABIATAE

f) &[.bYfcgZVWXY*, SS'gd": Ua f|UWga cdc`jU": .bYfcga Ug representativos: Salvia (800 spp.), Hyptis (400 spp.), Clerodendrum (400 spp.)-Figura 5)

9fj UgZUfM gtcgci `zfcYgZ Ya `gW-c`hUbg YfgU`UdfYgYbH`W`Y ei UFXcgZc`UgcdcghUgci j YfHjMULgUcfYgZcfhA YbhV|U|UXgWa `dois a quatro estames, frequentemente com conectivo alongado. Carac-hf|g|Wa YbhZc`cj zfc`f`g`dYfc`Wa`XcgWfdYcgza UgWa`c`XcVfc`XY`CWcgfXcg|b|cj i`UXcgZdc|gc| |bYM`f|b|MUa YbhV|cWUfZY`c|c`UWj|Xc`Ya`ei Ufc`Wa`UfUgZUg`CWcg|dcf|bhf|g`c`XY`gYdrcgU dUhf`XlgdUfYXg`XcgWfdYcg`C`Yg|YH`f`Uha`YbhVfUMf|g|W.`b-c`hfa`|bUza`Ug|`|bcVzjW`"

5 Zã f|U|bW|`a i`|HgYgdVWgWa`ja dcfh|bWUWb`a`|WzgyUdYU dfYgYb, UXYCEYcgYgYbWUgci`i`h`|nUXgWa`c`YgdVWf|Ug`M.`FcgUf|`bi`gfUYM|a`Lza`YbhUf|cfhY`-za`YbhUzGUj`JUfz`j`UzC`Vã`i`a`fUZj`UWz`a`Ub`Yf|WczC`f|`Ua`i`a`f`f`f`|`UbcLz@j`UbXUfUj`UbXL`A`i`|HgYgdVWg`g`c`cfblA`YbhUgZWa`c`GUj`JUyD`WfUbh`i`g`f`MEY`g`"

VERBENACEAE

f|) ([.bYfcgZVWXY%SS'gdL"5a d'Ua YbhXjgfM fXUblgYfM|" Yg hcdjMgUHã dYUXg": .bYfcga UgYdfYgYbHj cgJ YfVYUf&SS'gdLz Lippia (200 spp.), Lantana (150 spp.), Stachytarpheta (70 spp.)Figura 5)

9fj UgZ`jUbUgZUfM gtcgci `zfcYgZ{g| YnYgWa`UW`Ycgci`Ygd|b\cg/

W i Y g [Y f U a Y b h e i U X U X c g Y a ' g Y ~ c h f U b g Y f g U " : c \ U g g a d Y g z c d c g U g
 c i c W g c b U a Y b h j Y h j W U X g ' : c f Y g V j g g i U g z V U h f U g g f d U U g) z d f U U g
) z W b U X g Y g h a Y g (z X X b U a c g z Y d j d f U c g / W f d Y c g & z W b U X c g z c j z f c '
 g d Y f c z & c W U f a U g d f Y W b X c (! c W U f X y j X c U e X y b j c j j a Y b h e X Y
 i a ' Z u g g y d h e / Y g j Y h j h f a j b U z Y g j j a U j Y f U a Y b h e & c V U X c " e j i c g &
 d c f W f d Y c f l g c ' f z j Y f U a Y b h e % Q e i c ' Y a ' W U U C W c ' U d f Y b h e " 8 j g W
 b Y W U f z f c j Y f U a Y b h e d f Y g b h e " : f i h e X f i d U c i ' Y g e i j n c W f d c "

5 [i a U g Y g d j W g z c f b Y W a ' C E Y c g Y g b W U g Y g c i h j n U X g b U a Y
 dicina tradicional, ex: Lippia e Priva. Lantana, Verbena (camaradinha),
 G U W h f d Y h U f j Y f j ~ c E "



: j j i f U " C f X Y a ' @ l a j U Y g U ' b U c f y g m b W U X Y G d U h c X Y z V " b U c f y g m b W U X Y A Y b h U g d z W b l
 U c f y g m b W U X Y G U W h f d Y h U z X " D U b j U ~ c X Y @ j U b X U

9 I 5 G H 9 F a 8 9 5 G = f 7 5 A D 5 B I @ a 8 9 5 G L

Esse clado agrupa as ordens Aquifoliales, Apiales, Dipsacales e a As-
 h f U Y g ' 5 ' a U c f j U X U g Y g d j W g Y g z j b W j U b U c f X Y a ' 5 g h f U Y g '
 Ordem Asterales
 5 b z j g y a c W U f Y g U f a ' X Y y j X b W U g a c f z C E j W g f d f Y g b, U X Y

d/fUlg'j Uj Uxlg' bi 'bUWa c' WfVc'XfUc' XYfygfj UYa Wwlg' c' XY dc']b]nU ~c hdc' :a Vc'cZwBfUa La' c'a cbcU'Yfha c' XUcfXa' 5ghfUYg' 5 cfXa' Wbgd'YXY%Za' f]Ugf'5' gM cga]UMUz5 f[cd\mUMUz5 ghfU ceae, Calyceraceae, Campanulaceae (includi as Lobeliaceae), Goodeniaceae, Menyanthaceae, Pentaphragmaceae, Phellinaceae, Rouseaceae, inclui as 7UfdcXYfUMUzGm]XUMU'ci' 8cbU]UMU'LYWFWXY&(" - SS'Ygd'fVYg

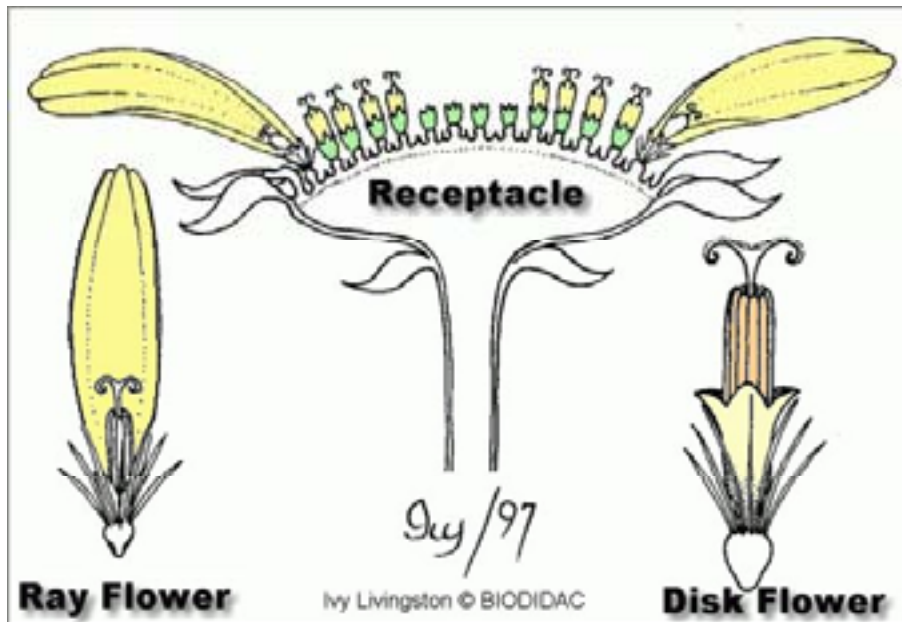
ASTERACEAE OU COMPOSITAE

fj') [.byfcg' WFWXY & "SSS' gdd": La' f]UWga cdc']U'; .byfcg' mais representativos: Senecio (1500 spp.), Vernonia (1000 spp.), Baccharis (400 spp.), Mikania (300 spp.), Bidens (200 spp.)-Figura 6 -7)

9fj Ug' UfVi g'cg' ci' 'zfj cfYg' dfYyb, UXY' c']] cggUM'pXcg' Wa' c' WfVc'XfUc'g'XYfygfj U' ~bUcfYg'WbVlg'Xc' hdc' Wdhi' cZ'Ybj' c'j]Xc' dcf' VzWUg']bj' c' i' WUg' UcfYg' dYbh'a YfUg' Wa' W']Wa' cX]UMXc' Z'cfa' Ubc' c' WUMf'g]W' dUdi' g'NM'Xlg' ci' 'Ygf' i' h' fUg' d'i' a' c'g'g' ei' YU']]] La' 'bU Xlg'Yf'g'c' UYa' c'W]W'ci' Yd]mcc'W]W'c'W]n'Uc' Ua' Uxc' c'j' z'f'c' 'bZ'fc'" 5bX'c'W']g'g'ha' cb'Z'Wa' Ug'Ubh'f'Ugi' b]Xlg'Ya' 'h' Vc' Y']b'f'c'f'g'Ug']g'c' f'z']Vf'La' c' [f'c' XYd'c'Yb'd'f'Uc' Uxc']bh'f'bc' Xc' h' Vc'"C' []b'YM' 'f'V]M'd'YUz' c'c'j' z'f'c' i' b]c'W'Uz'Wa' i' a' 'g'c'g'ei' c' XYd'UWb'U' ~c' V'g'U'" 5ghfUMUz'f' Wbg'Xf'U'U' i' a' U'X'lg'a' Ucf'Yg'Z'a' f]Ug'X'lg'U'b[]c'gd'Yfa' Ug'

5g'UcfYg'dc'Xa' 'gyf' V'g'Wa' Ybh'Y' h' Vi' c'g'g'Y']] i' 'U'X'lg' 5g'df]a' Yf'Ug' g'c' [Yf'Ua' Ybh'Y' a' cbc'W'Ug' Y'Ug' • h'a' Ug' Ya' [Yf'U' d]g']U'lg' ci' 'b'Y' h'f'Ug' f]g'c' f'z'Yg'Y'f'Y'g'L'"

C'g'Wdhi' c'g'dc'Xa' 'gyf' : U'F'U'X'U'X'c'g' Wa' U'c'f'Yg' h' Vi' c'g'g'W'bh'Ua' Ybh'f'bc' X'lg'W'LY'U'c'f'Yg']] i' 'U'X'lg' b'U'd'Y'f'Z'f']U'f'bc' f'U'c'L'" 9l'" < Y']U'bh'i' g'f']f'U'g'g' 'Iz'6']X'bg'f'd]W'c'Z'7' f'ng'U'b! h'Ya' i' a' 'fa' U'f']U'X'Uz'; U'h'U']U'f']h']b']Uz'; Y'V'Y'U'f']V'Y'f'U' " V'L'8']g'W'X'Yg' Wa' U'c'f'Yg' Y' W'g'j' La' Ybh'Y' h' Vi' c'g'g' 9l'" G'h'y']U'f'g'h'y']Uz' Cynara (alcachofra), Vernonia (assa-peixe), Mikania (guaco). W'@] i' 'U'X'c'g' Z'c'fa' U'X'c'g'Y' W'g'j' La' Ybh'XY'U'c'f'Yg']] i' 'U'X'lg' h'c'X'lg'Y'U'g'a' cbc! W'U'lg' 9l'" 8' U']U'f'X'z']Uz' H'F'U' U'Wa' 'f'X'Y'bh'X'Y' 'Y'c'z' La' c'f'X'Y' \ca' Ya' Iz' Sonchus (serralha).



: J|i fU+ "8 Yġb\c Yġei Ya zĥW'XUJbĈcfġMbWU'Ya 'Wdĥi 'c XY5gĥfUWU'



: J|i fU+ "5 gĥfUWU' UV': fi ĥcgY]bĈcfġMbWU'XYHfU UWa 'gd fKXbh!XY! Y-clZw-bĈcfġMbWU' fĈcfġfUX]UXġ.XY< Y]Ubĥi g'Ubbi i g'X' =bĈcfġMbWU'fĈcfġXgW]Xg.XY7nbUfUfUWw'cZU.

7CB 7@I GÈC ·

7ca c di Xá cgj YfZUg5 gmf XMg WffYg dcbXá U%# Xlg5 b| |cgdYf!
 a Ug' =bW| VWXY, \$'SSSZ Yg fVMgž ("SS| .byfcgž%SS'Zá f]Ug fXbhY
 YUgei Ufc Xlg%\$a UcfYgZá f]UgXYU| |cgdYfa Ug 5 gMUMUžFi V]UMUž
 @á]UMUY 5dcWbUMUž Y%'cfXbg' G-c 'Yá 'g Ua Ucf]U\YVzMUž
 embora existam representantes lenhosos na maioria das ordens. Algumas
 Zá f]Ug UdfYg bhá YgdVMgWa 'Uhc j Ucf'Wb' a]WžWa c'Fi V]UMUY
 fZá f]UXc Wžfz@a]UMUžZá f]UXJa YbhžXc'cf] Ubc YXc'a Ub'f]WcIž
 Cc UbUMUžZá f]UXc hca UñVUUUdJa Ybhc YVf]b'YU'

RESUMO

5g5 gmf XMgž 1 bhá YbhWa UgFcg XMgžZfa Uá c' | fi dc'a Ugg|!
 b]UMh c Xlg9i XW|YX byUg'BUU 'UX\c'YUdfYbXá cggc VYUgdf]b!
 VdUgcfXbgYZá f]UgdYf hWbhgUYgh]a dcfhU|fi dc"9gi Xá cg
 UgZá f]Ugá Ugg| b]UMh j UgdUUV|cXj YfgXUYVUg'YfUYUdfYbXá cg
 g'VYUgdf]bVdUg'WUMf]g]WgXU bC]MgXgUg'9a WUZá f]Uj]a cg
 c'hcU'XY| .byfcg'YXYgdVMgYg Uja dcfh]bVUYWb' a]W



ATIVIDADES

%"7]YXi Uggbdca cfUgXY 5 gmf XMg
 &'E i Ubhg'Yei Ugg-c Ug'cfXbg'dYf hWbhg{g5 gmf XMgž
 ' "9gW\Ui a UZá f]UXY'WUc'fXá 'UdfYg bhXUY
 U'VYg Uja dcfh]bVUYWb' a]W
 V'VYi a U'WUMf]g]W a cfZc 'C]W'ei YUgXZfYbVY'



DF ê L=A 5 '5I @5

B UdfCE]a UU 'UYgi XLYá cg'Uja dcfh]bVUYWb' a]WXYU|i a Ug
 plantas.



F9: 9F â B 7=5G

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