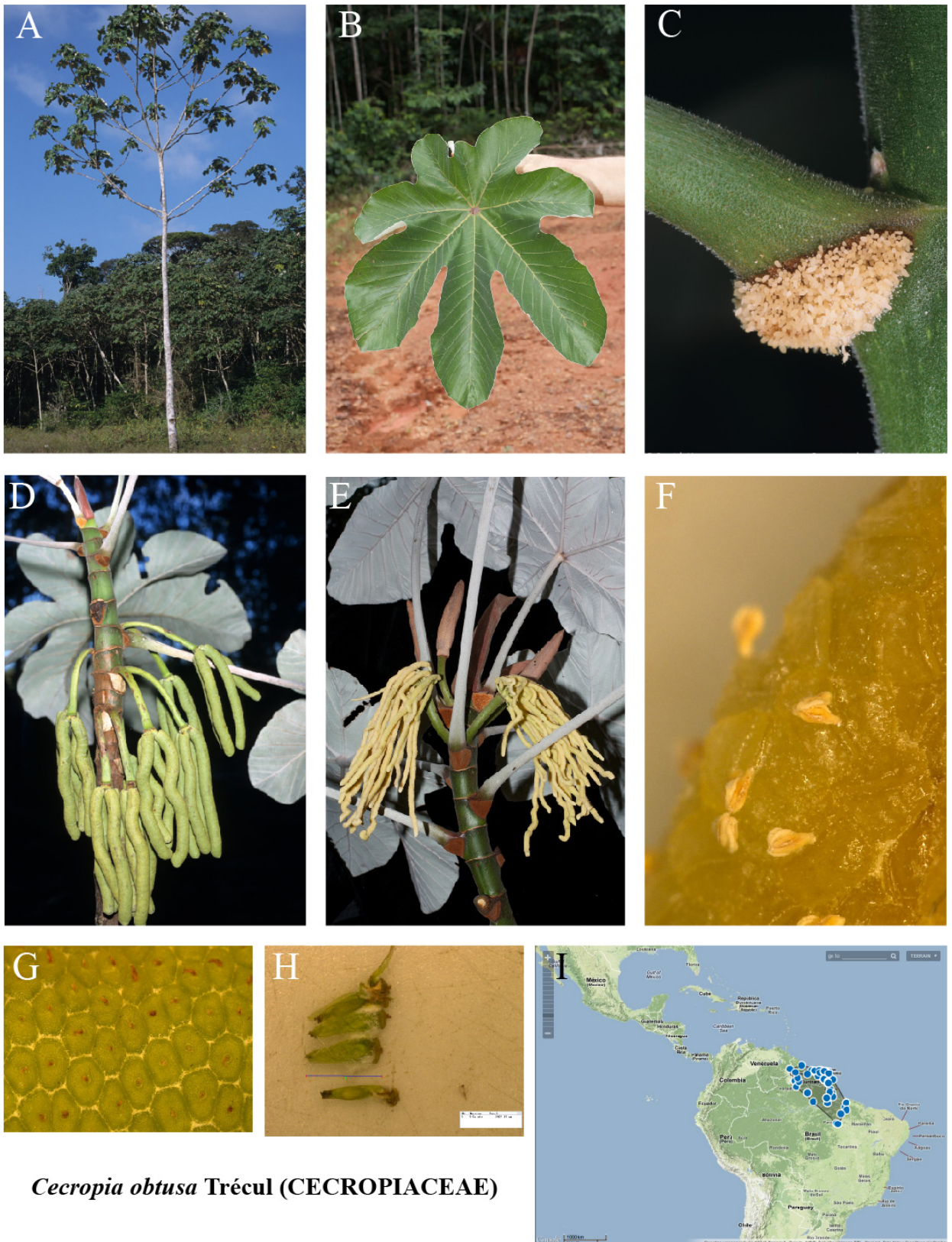


ANNEXES

Annexe 1. Les fichiers photographies descriptive pour chaque espèce



***Cecropia obtusa* Trécul (CECROPIACEAE)**

A. Tree; B. Leaf; C. Trichilia, Müllerian bodies; D. G. Inflo_Pistillate (♀); E. F. Inflo_Staminate (♂);
H. Fruit; I. Distribution map.

(Photos: A,C,D: © Patrick HEURET; B,E-I: © NGUYEN LE Xuan Bach (Data GPS: Zalamea et al. 2011))

Annexe2: Liste des caractères sont utilisés dans logiciel XPER2_Cecropia et leur indice de dissimilarité. Le numéro présent dans la dernière colonne correspond à une des photographies de la Annexe 3.

| Groupe | Liste des caractères | XPER | Sokal & Michener | Jaccard | Dans la clef de B&FR2005 | Caractères numérique | Caractère manquant | Je propose | Observer sur Protocole photo |
|-----------|--|-----------------|------------------|------------------|--------------------------|----------------------|--------------------|------------|------------------------------|
| TRICHILIA | 01.Presence of trichilia | 255/1830 (0.14) | 395/1830 (0.22) | 395/1830 (0.22) | 1 | | | 1 | 4, 5 |
| | 02.Müllerian bodies: length | 0/1540 (0.0) | 0/1540 (0.0) | 0/1540 (0.0) | 1 | 1 | 1 | | |
| | 03.Müllerian bodies: color | 12/1540 (0.01) | 204/1540 (0.13) | 204/1540 (0.13) | 1 | | 1 | 1 | 4, 5 |
| | 04.Trichilia: type | 135/1540 (0.09) | 327/1540 (0.21) | 327/1540 (0.21) | 1 | | | 1 | 4 |
| | 05. Trichilia: aspect | 2/1540 (0.0) | 81/1540 (0.05) | 81/1540 (0.05) | 1 | | 1 | | 4, 5 |
| | 06. Trichilia: form | 115/1540 (0.07) | 507/1540 (0.33) | 507/1540 (0.33) | 1 | | 1 | | 4 |
| | 07. Trichilia: position | 1/1540 (0.0) | 55/1540 (0.04) | 55/1540 (0.04) | 1 | | 1 | | |
| | 08.Trichilia: hair length | 377/1540 (0.24) | 370/1540 (0.24) | 638/1540 (0.41) | 1 | | | 1 | 4, 5 |
| | 09.Trichilia: hair color | 88/1485 (0.06) | 318/1485 (0.21) | 426/1485 (0.29) | 1 | | | 1 | 4, 5 |
| LAMINAR | 10. Lamina: texture | 488/1830 (0.27) | 865/1830 (0.47) | 995/1830 (0.54) | 1 | | | | |
| | 11. Number of segments (or main veins) | 941/1830 (0.51) | 1825/1830 (1.0) | 1825/1830 (1.0) | 1 | 1 | | 1 | 7 |
| | 12. Lamina: segment incision | 316/1830 (0.17) | 375/1830 (0.21) | 507/1830 (0.28) | 1 | | | 1 | 7 |
| | 13. Free part of the mid-segment length/Total mid-segment length ratio | 640/1485 (0.43) | 1374/1485 (0.93) | 1374/1485 (0.93) | 1 | 1 | | 1 | 7 |
| | 14.Free part of the mid-segment: form(a) | 5/1830 (0.0) | 170/1830 (0.09) | 170/1830 (0.09) | 1 | | 1 | | 7 |
| | 15: Presence of petiolule | 0/15 (0.0) | 0/15 (0.0) | 0/15 (0.0) | 1 | | 1 | | 7 |
| | 16.Free part of the mid-segment: form(b) | 716/1830 (0.39) | 675/1830 (0.37) | 1366/1830 (0.75) | 1 | | | 1 | 7 |
| | 17.Apex of the mid-segment: form | 338/1830 (0.18) | 637/1830 (0.35) | 967/1830 (0.53) | | | | 1 | 7 |
| | 18. Lamina: upper surface | 359/1830 (0.2) | 639/1830 (0.35) | 1265/1830 (0.69) | 1 | | | | |
| | 19. Lamina: lower surface | 88/1830 (0.05) | 524/1830 (0.29) | 1066/1830 (0.58) | 1 | | | | |
| | 20. Number of pairs of lateral veins in the mid-segment | 999/1830 (0.55) | 1826/1830 (1.0) | 1826/1830 (1.0) | 1 | 1 | | 1 | 7 |
| | 21. Lateral veins: type of connection | 468/1830 (0.26) | 723/1830 (0.4) | 723/1830 (0.4) | 1 | | | 1 | 7 |
| | 22. Lateral veins: ramification | 624/1830 (0.34) | 899/1830 (0.49) | 899/1830 (0.49) | 1 | | | 1 | 7 |
| | 23. Lamina: adaxial surface | 4/1830 (0.0) | 118/1830 (0.06) | 118/1830 (0.06) | 1 | | 1 | | |

| Groupe | Liste des caractères | XPER | Sokal & Michener | Jaccard | Dans la clef de B&FR2005 | Caractères numérique | Caractère manquant | Je propose | Observer sur Protocole photo |
|------------|--|------------------|------------------|------------------|--------------------------|----------------------|--------------------|------------|------------------------------|
| | 24. Lamina: beneath: arachnoid indumentum in two distinct players? | 0/1830 (0.0) | 0/1830 (0.0) | 0/1830 (0.0) | 1 | | 1 | | |
| | 25. Lamina: plicate or plane? | 0/1830 (0.0) | 0/1830 (0.0) | 0/1830 (0.0) | 1 | | 1 | | |
| PETIOLE | 26. Petiole: length | 172/1830 (0.09) | 1822/1830 (1.0) | 1822/1830 (1.0) | | 1 | | | |
| | 27. Petiole: color | 18/1830 (0.01) | 309/1830 (0.17) | 319/1830 (0.17) | | | 1 | | 6 |
| | 28. Petiole: indumentum | 309/1830 (0.17) | 460/1830 (0.25) | 1242/1830 (0.68) | 1 | | | | 6 |
| STIPULE | 29. Stipule: length | 684/1830 (0.37) | 1825/1830 (1.0) | 1825/1830 (1.0) | 1 | 1 | | | 3 |
| | 30. Stipule: color | 331/1830 (0.18) | 613/1830 (0.34) | 1266/1830 (0.69) | 1 | | | 1 | 3 |
| | 31. Stipule: indumentum on the outer part | 547/1830 (0.3) | 447/1830 (0.24) | 1395/1830 (0.76) | 1 | | | | 10 |
| | 32. Stipule: indumentum on the inner part | 931/1830 (0.51) | 435/1830 (0.24) | 1265/1830 (0.69) | 1 | | | | 11 |
| | 33. Stipule: persistence and texture | 29/1830 (0.02) | 539/1830 (0.29) | 568/1830 (0.31) | 1 | | 1 | | |
| STAMINATE | 35. Staminate spikes: number | 1016/1830 (0.56) | 1827/1830 (1.0) | 1827/1830 (1.0) | 1 | 1 | | 1 | 8,9 |
| | 36. Staminate inflorescence: peduncle position | 378/1830 (0.21) | 633/1830 (0.35) | 633/1830 (0.35) | | | | 1 | 8 |
| | 37. Staminate inflorescence: spike positions | 580/1830 (0.32) | 874/1830 (0.48) | 874/1830 (0.48) | | | | 1 | 8 |
| | 38. Staminate inflorescence: peduncle length | 359/1830 (0.2) | 1705/1830 (0.93) | 1705/1830 (0.93) | 1 | 1 | | | 9 |
| | 39. Staminate spikes: maximal length | 534/1830 (0.29) | 1824/1830 (1.0) | 1824/1830 (1.0) | 1 | 1 | | | 9 |
| | 40. Staminate spikes: maximal diameter | 707/1830 (0.39) | 1272/1830 (0.7) | 1272/1830 (0.7) | 1 | 1 | | | 9 |
| | 41. Staminate spikes: maximal stipe length | 290/1830 (0.16) | 858/1830 (0.47) | 858/1830 (0.47) | 1 | 1 | | | 9 |
| PISTILLATE | 42. Pistillate spikes: number | 543/1830 (0.3) | 987/1830 (0.54) | 987/1830 (0.54) | 1 | 1 | | 1 | 8,9 |
| | 43. Pistillate inflorescence: position | 260/1830 (0.14) | 722/1830 (0.39) | 722/1830 (0.39) | 1 | | | 1 | 8 |
| | 44. Pistillate inflorescence: peduncle length | 496/1830 (0.27) | 1824/1830 (1.0) | 1824/1830 (1.0) | 1 | 1 | | | 9 |
| | 45. Pistillate spikes: maximal length | 243/1830 (0.13) | 1763/1830 (0.96) | 1763/1830 (0.96) | 1 | 1 | | | 9 |
| | 46. Pistillate spikes: maximal diameter | 282/1830 (0.15) | 1763/1830 (0.96) | 1763/1830 (0.96) | | 1 | | | 9 |
| | 47. Pistillate spikes: maximal stipe length | 7/1830 (0.0) | 35/1830 (0.02) | 35/1830 (0.02) | 1 | 1 | | | 9 |
| | 48. Stigma: type | 959/1830 (0.52) | 652/1830 (0.36) | 1134/1830 (0.62) | 1 | | | | |

| Groupe | Liste des caractères | XPER | Sokal & Michener | Jaccard | Dans la clef de B&FR2005 | Caractères numérique | Caractere manquant | Je propose | Observer sur Protocole photo |
|---------------------|--|-----------------|------------------|------------------|--------------------------|----------------------|--------------------|------------|------------------------------|
| SPATHE | 49. Spathe: color | 751/1830 (0.41) | 785/1830 (0.43) | 1467/1830 (0.8) | 1 | | | | 8 |
| | 50. Spathe: indumentum on the outer part | 548/1830 (0.3) | 468/1830 (0.26) | 1365/1830 (0.75) | 1 | | | | |
| | 51. Spathe: indumentum on the inner part | 40/1830 (0.02) | 462/1830 (0.25) | 794/1830 (0.43) | 1 | | | | |
| | 52. Spathe: texture | 2/1830 (0.0) | 89/1830 (0.05) | 89/1830 (0.05) | 1 | | 1 | | |
| | 53. Staminate spathe: length | 448/1830 (0.24) | 1480/1830 (0.81) | 1480/1830 (0.81) | 1 | 1 | | | 9 |
| | 54. Pistillate spathe: length | 586/1830 (0.32) | 1481/1830 (0.81) | 1481/1830 (0.81) | 1 | 1 | | | 9 |
| FRUIT | 55. Fruit: length | 256/1830 (0.14) | 433/1830 (0.24) | 433/1830 (0.24) | 1 | 1 | | | |
| | 56. Fruit: form | 458/1830 (0.25) | 768/1830 (0.42) | 947/1830 (0.52) | | | | | |
| | 57. Fruit: surface | 604/1830 (0.33) | 875/1830 (0.48) | 1054/1830 (0.58) | | | | | |
| TIGE | 58. Pith: aspect | 0/1830 (0.0) | 0/1830 (0.0) | 0/1830 (0.0) | | | 1 | | |
| | 59. Tree: height | 0/1830 (0.0) | 465/1830 (0.25) | 465/1830 (0.25) | | 1 | | | |
| | 34. Stipule scars: aspect | 0/1830 (0.0) | 0/1830 (0.0) | 0/1830 (0.0) | 1 | | 1 | | |
| POSITION GEOGRAPHIC | 60. Location | 0/1830 (0.0) | 602/1830 (0.33) | 1124/1830 (0.61) | 1 | | 1 | 1 | |

Annexe 3. Mes propositions de prise de vue photographique standardisées



1. Tree



2. Tige



3. Stipule



4. Trichilia



5. Trichilia



6. Petiole



7. Leaf lower



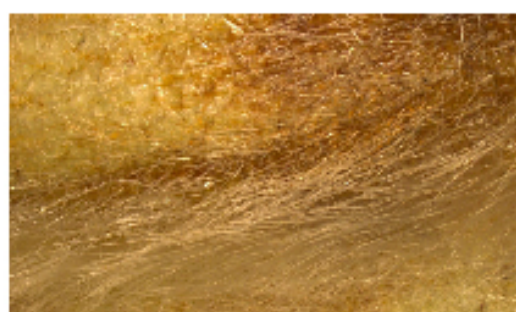
8. Inflorescence



9. Inflorescence



10. Stipule outside



11. Stipule inside

Annexe 4 : Le protocole pour utiliser sur le terrain pour décrire un individu de *Cecropia* et leur illustration

Descripteur :
Date & Location :
GPS : Alt. :
SP : Sex : ☐ F ; ☐ M

Tall:
Number node:
Diameter:
Ramification:
Reiteration:

TRICHILIA

1. Trichilia present or not?
2. Color of the Müllerian bodies:
3. Type of « Trichilia » :
4. Trichilia: on a subscrotiform base of the petiole ?
5. Trichilia: upper margin of the rim ?
6. Long of hair on Trichilia ?
 - ☐ a) Only brown indumentum
 - ☐ b) Short, as long as the brown indumentum
 - ☐ c) Longer than the brown indumentum

- | | |
|--|------------------------------------|
| <input type="checkbox"/> a) Present; | <input type="checkbox"/> b) Absent |
| <input type="checkbox"/> a) White; | <input type="checkbox"/> b) Pink |
| <input type="checkbox"/> a) Separate ; | <input type="checkbox"/> b) Fused |
| <input type="checkbox"/> a) Yes ; | <input type="checkbox"/> b) No |
| <input type="checkbox"/> a) Yes ; | <input type="checkbox"/> b) No |

LEAF

7. Incision of lamina down to petiole or not? ☐ a) *To petiole*; ☐ b) *Near petiole* ; ☐ c) *Not down to petiole*
8. N° segment (main vein):
9. Free part of the segment entire or lobate? ☐ a) *Entire*; ☐ b) *Lobate*
10. Number of lateral vein de mid-segment:
11. Lateral veins: type of loop-connected? ☐ a) *Marginally*; ☐ b) *Before margin*
12. Lateral veins: branched or not? ☐ a) *Branched*; ☐ b) *Unbranched or several branched*
13. Long of mid-segment (cm):
14. Long of free part of the mid-segment (cm):
15. Form of free part of the mid-segment: ☐ a) *Oblanceolate*; ☐ b) *Obovate*; ☐ c) *Ovate*; ☐ d) *Spathulate*;
☐ e) *Oblong* ; ☐ f) *Elliptic*; ☐ g) *Lanceolate* ; ☐ h) *Linear*
16. Form of apex of the segment: ☐ a) *Acuminate*; ☐ b) *Obtuse - Rounde*; ☐ c) *Acute*; ☐ d) *Apiculate*
17. Above of lamina: bullate or not? : ☐ a) Yes; ☐ b) No
18. Lamina: plicate or plane? ☐ a) Plicate; ☐ b) Plane
19. Present arachnoid indumentum at upper surface? ☐ a) Yes; ☐ b) No
20. Present arachnoid indumentum at lower surface? ☐ a) Yes; ☐ b) No

PETIOLE

21. Long x Diameter (cm):
22. Present arachnoid indumentum at petiole? ☐ a) Yes; ☐ b) No

STIPULE

23. Long (cm):
24. Color? ☐ a) Green; ☐ b) Red; ☐ c) White; ☐ d) Pink; ☐ e) Yellow;
☐ f) Purple; ☐ g) Gray; ☐ h) Brown; ☐ i) Black

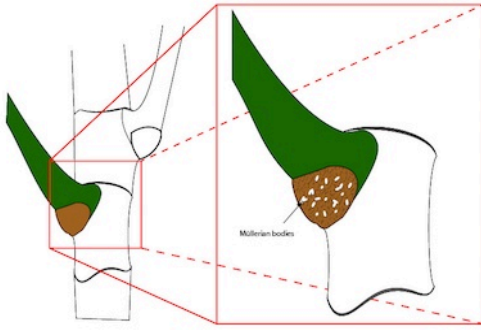
SPATHE

25. Long (cm):
26. Color? ☐ a) Green; ☐ b) Red; ☐ c) White; ☐ d) Pink; ☐ e) Yellow;
☐ f) Purple; ☐ g) Gray; ☐ h) Brown; ☐ i) Black

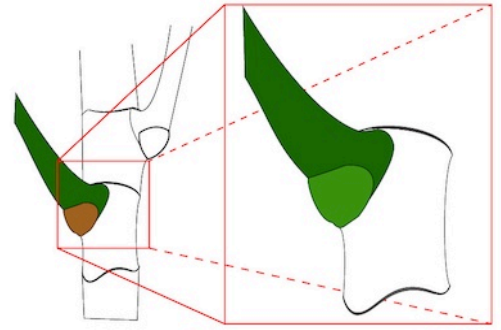
STAMINATE or PISTILATE

27. Number of spike:
28. Long x diam. of spike (cm):
29. Long x diam. of peduncle (cm):
30. Long of the stipe of spike (cm):
31. Type of peduncle: ☐ a) Erect; ☐ b) Deflexed; Pendulous
32. Type of spike: ☐ a) Erect; ☐ b) Deflexed; Pendulous

1

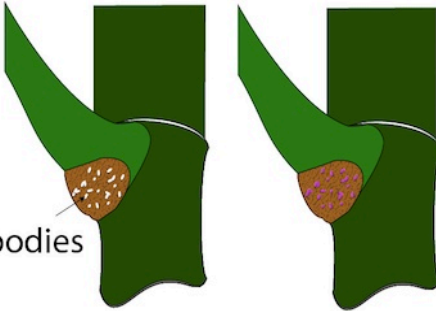


a. Present



b. Absent

2

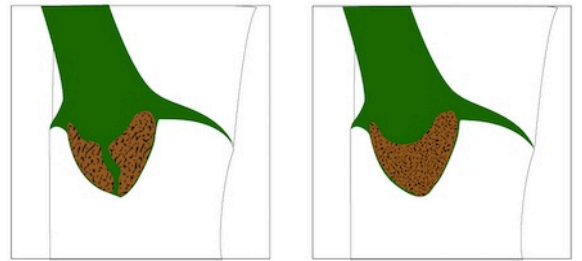


Müllerian bodies

a. White

b. Pink

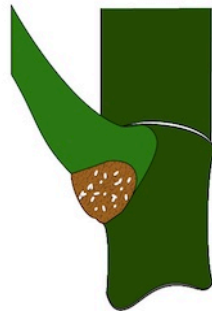
3



a. Separate

b. Fused

4

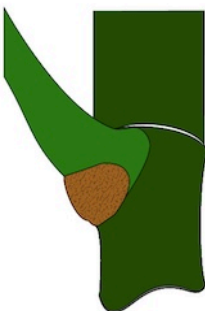


a. Not subscrotiform

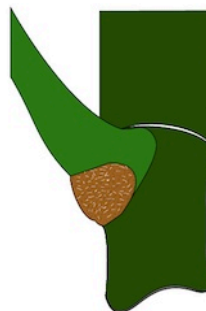


b. Subscrotiform

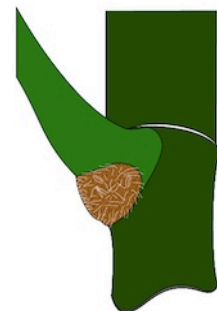
6



a. Only brown
indumentum



b. Short



c. Long

7



a. To petiole

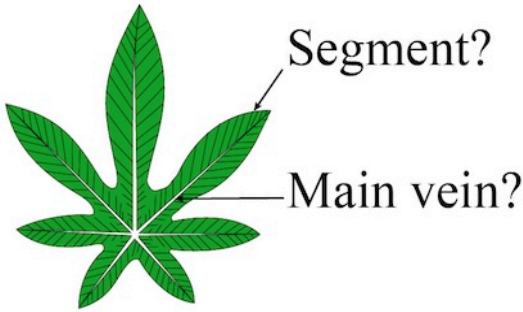


b. Near petiole

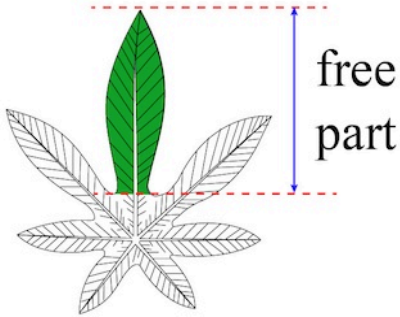


c. Not down to petiole

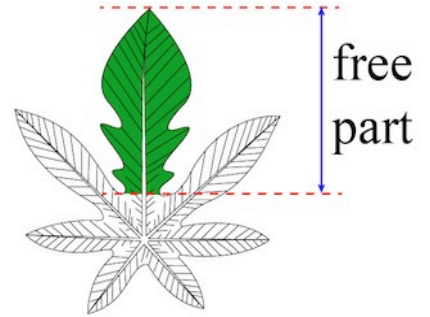
8



9

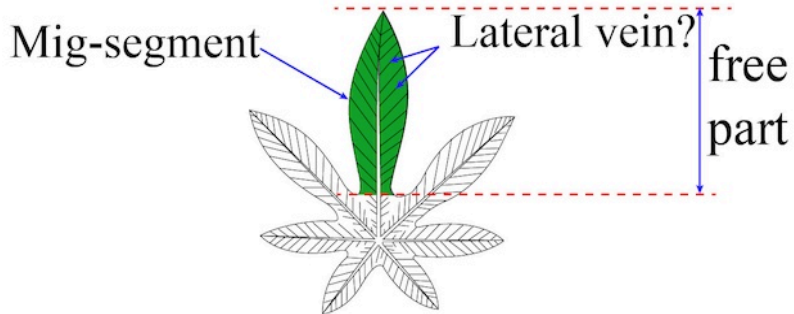


a. Entire

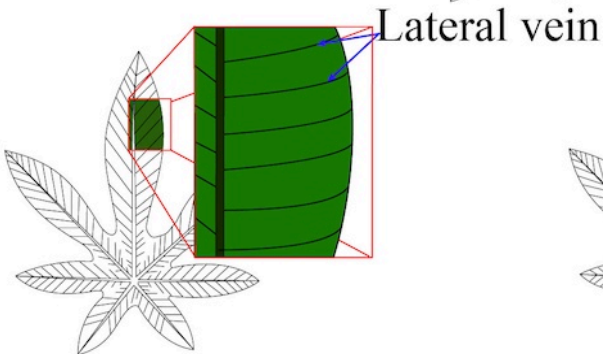


b. Lobate

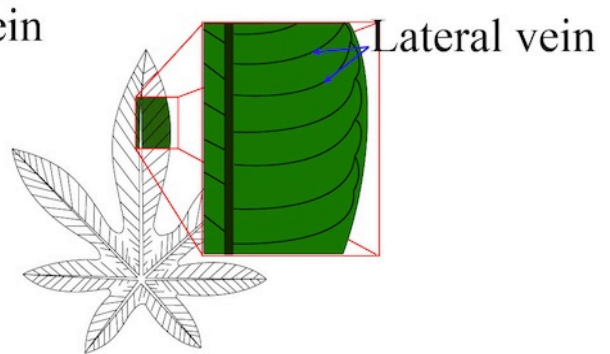
10



11

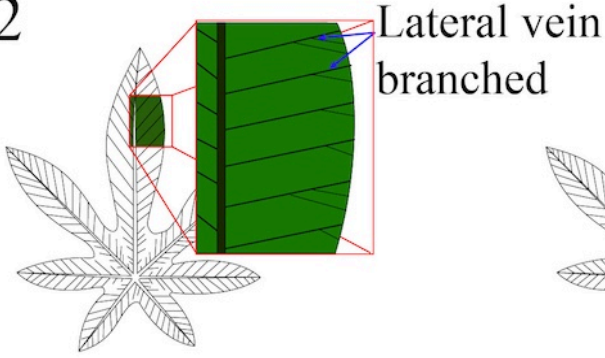


a. Marginally

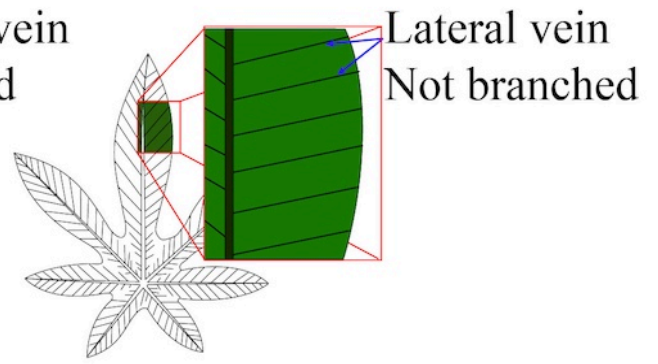


b. Sub marginally

12

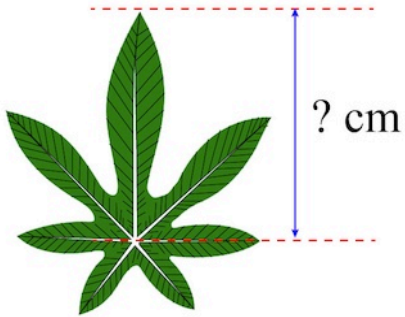


Lateral vein
branched

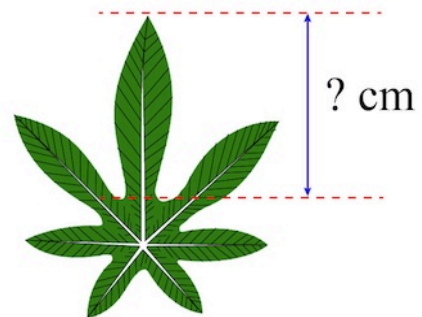


Lateral vein
Not branched

13



14



15



Elliptic



Lanceolate



Linear



Oblanceolate



Oblong



Obvate



Ovate



Spatulate

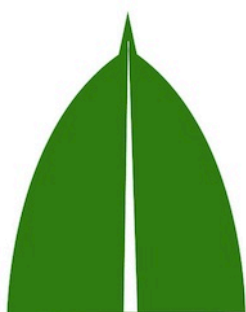
16



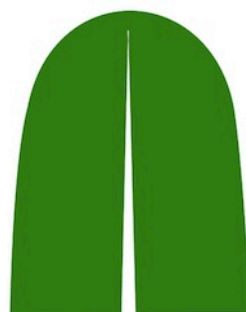
Acuminate



Acute

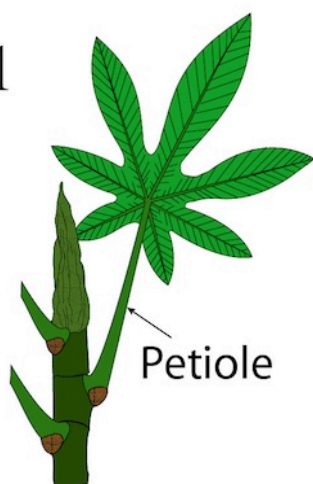


Apiculate

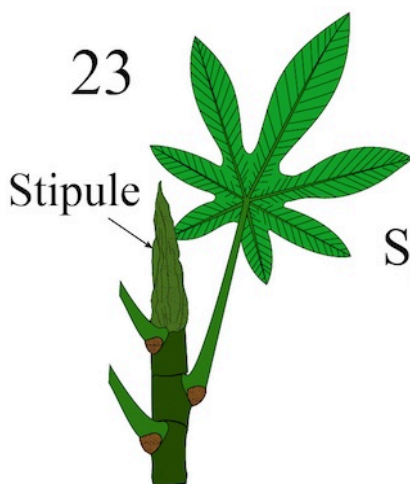


Obtuse

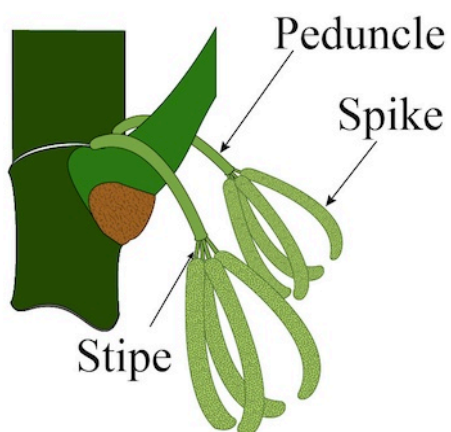
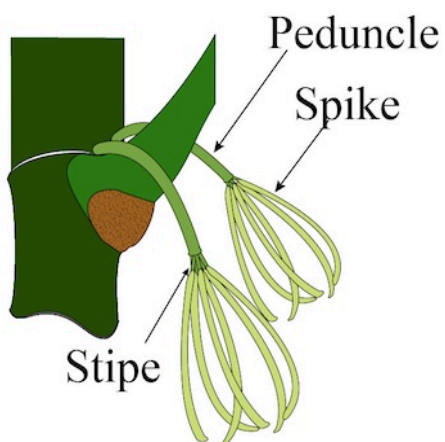
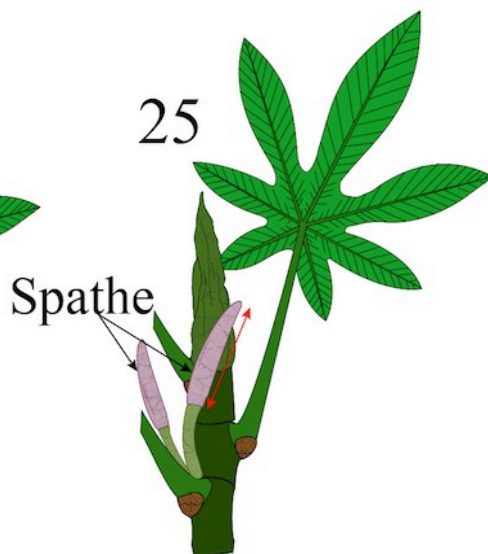
21

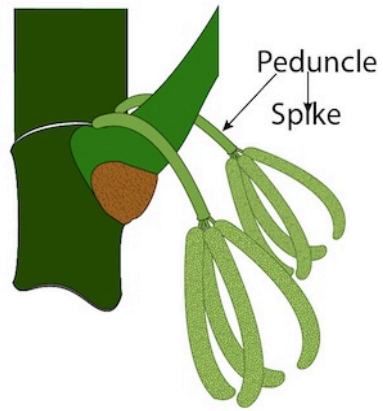


23

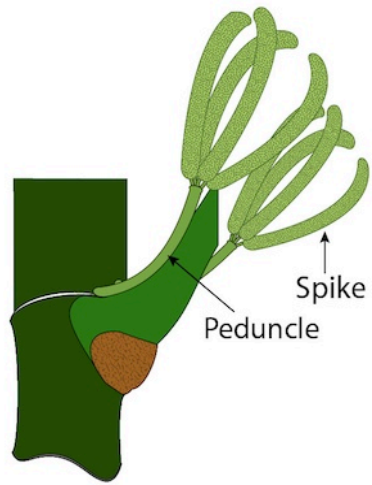


25





Deflexed; Pendulous



Erect