

Table 7: Morphological characters of *Alternanthera* species.

CHARACTERS		<i>A. sessilis</i>	
		red leaf form	green leaf form
Type		herb	herb
Growth Habit		perennial, annual dry area	perennial, annual dry/wet area
	terrestrial	decumbent or creeping and forming mat; occasionally ascending	decumbent or creeping and forming mat
	aquatic	not found in the field	ascending; partially submerged
Stems			
• rooting at the node	terrestrial	taproot and fibrous roots robust	taproot and fibrous roots robust
	aquatic	not found in the field	long rootlets
• fistular/ solid	terrestrial	solid	solid
	aquatic	not found in the field	fistular
• colour		red	green, except tinged purple at the node
• hair	young stem	terrestrial: short, erect, stiff; at interpetiolar median, nodes, leaf axils,	terrestrial: short, erect, stiff; at interpetiolar median, nodes,
	mature stem	longitudinal side	leaf axils, longitudinal side
		aquatic: not found in the field	aquatic: Submerged stem is glabrous at the interpetiolar
		aquatic	median, the nodes and leaf axils.
• other		striate, terete	striate, terete
Leaves			
• arrangement		opposite	opposite
• shape		elliptic/ lanceolate/ oblanceolate	elliptic/ lanceolate/ oblanceolate/ ovate/ narrow elliptic
• size	length (mm)	not found in the field	
	• aquatic	not found in the field	35.67 ± 8.92
	• terrestrial	38.18 ± 6.50	29.54 ± 6.59
	width (mm)		
	• aquatic	not found in the field	8.55 ± 1.92
	• terrestrial	9.47 ± 2.79	9.50 ± 1.27

Table 7: Continued.

CHARACTERS		<i>A. sessilis</i>	
		red leaf form	green leaf form
Leaves			
• apex		acute/obtuse, without mucro	acute/obtuse, without mucro
• base		attenuate/cuneate without demarcated petiole	attenuate/cuneate without demarcated petiole
• margin	fimbriate	sparsely serrate occsionally fimbriate √	sparsely serrate occsionally fimbriate √
• mucro		x	x
• colour		red	green
• indumentum	adaxial surface	long hairs on the midrib, minute barb-like hairs on the lamina/ glabrous	long hairs on the midrib, minute barb-like hairs on the lamina/ glabrous
• indumentum	abaxial surface	long hairs on the midrib, barb-like hairs on the lamina	long hairs on the midrib, barb-like hairs on the lamina/ glabrous
Petioles			
• length (mm)		1.11 ± 0.18	1.17 ± 0.16
Inflorescences			
• position		axillary	axillary
• sessile/ pedunculate		sessile	sessile
• clustering		solitary/in clusters of 2	solitary/in clusters of 3
• type		spike	spike
• shape		young: subglobose mature: cylindrical	young: subglobose mature: cylindrical
• rachis with hairs		√	√

Key to the symbols used:
√: present; x: absent; n.a.: not available

Table 7: Continued.

CHARACTERS		<i>A. sessilis</i>	
		red leaf form	green leaf form
Bracts			
• number		3	3
• shape		deltoid	deltoid
• size	length (mm)	n.a.	n.a.
	width (mm)	n.a.	n.a.
• apex		acute	acute
• nerve		1	1
• indumentum	abaxial surface	glabrous	glabrous
	adaxial surface	glabrous	glabrous
• other		white, scarious	white, scarious
Bracteoles			
• number		x	x
• shape		x	x
• apex		x	x
• size	length (mm)	x	x
	width (mm)	x	x
• nerve		x	x
• indumentum	abaxial surface	x	x
	adaxial surface	x	x
• other		x	x
Petals			
• number		5	5
• shape		lanceolate	lanceolate
• size	equal/ subequal	equal	equal
	length (mm)	1.82 ± 0.21	1.73 ± 0.23
	width (mm)	0.71 ± 0.11	0.69 ± 0.14

Table 7: Continued.

CHARACTERS		<i>A. sessilis</i>	
		red leaf form	green leaf form
Petals			
• margin		sparsely denticulate at the upper part	sparsely denticulate at the upper part
• nerve		1	1
• Indumentum	abaxial surface	glabrous	glabrous
• Indumentum	adaxial surface	a few minute hairs/ glabrous	a few minute hairs/ glabrous
• colour		white except pink at the base	white except green at the base
• other		scarious	scarious
Androecium			
• stamen	number	3/4	3
	length (mm)	0.71 ± 0.09	0.73 ± 0.06
• filament		fuse at the base to form a short cup	fuse at the base to form a short cup
• anther	shape	oblong	oblong
	pollen grains	√	√
• pseudostaminodes	length	slightly shorter/ as long as the stamen	slightly shorter/ as long as the stamen
	apex	narrowly to broadly triangular, entire-subentire margin	narrowly to broadly triangular, entire-subentire margin
	colour	white	white
Gynoecium			
• ovary	number	1	1
	shape	obcordate	obcordate
	length (mm)	0.68 ± 0.08	0.66 ± 0.07
	colour	red	light green
• stigma		capitate	capitate
• style	length (mm)	0.10 ± 0.01	0.12 ± 0.03

Table 7: Continued.

CHARACTERS		<i>A. brasiliana</i>	<i>A. paronychioides</i>
Type		shrub	herb
Growth Habit		perennial open/ shady area	perennial dry; rarely damp area
	terrestrial area	decumbent at base, growing up ascending/erect; gregarious	prostrate and forming mat, rarely ascending
	aquatic area	not found in the field	not found in the field
Stems			
• rooting at the node	terrestrial area	taproot and fibrous roots robust	taproot and fibrous roots robust
	aquatic area	not found in the field	not found in the field
• fistular/ solid	terrestrial area	solid	solid
	aquatic area	not found in the field	not found in the field
• colour		purple red	light brown
• hair	young stem	appressed; straight to curved; hairs all over	flexuous, long; hairs all over
	mature stem	appressed; straight to curved; moderately scattered	glabrescent
• other		obtusangular, striate, thickened & articulate above the node	partially striate,terete
Leaves			
• arrangement		opposite	opposite
• shape		lanceolate, elliptic, ovate	lanceolate, elliptic
• size	length (mm)		
	• aquatic	not found in the field	not found in the field
	• terrestrial	96.41 ± 11.18	19.41 ± 2.72
	width (mm)		
	• aquatic	not found in the field	not found in the field
	• terrestrial	45.35 ± 5.68	6.25 ± 0.53

Table 7: Continued.

CHARACTERS		<i>A. brasiliana</i>	<i>A. paronychioides</i>
Leaves			
• apex		acute/acuminate, without mucro	acute/acuminate, without mucro
• base		long attenuate into a distinctly demarcated petiole	long attenuate into a distinctly demarcated petiole
• margin		entire	entire
	fimbriate	x	x
• mucro		x	x
• colour		young: green	green
		mature: purple red	
• indumentum	adaxial surface	appressed, minute, dentate; hairs all over, especially on the midrib	young: appressed, long; hairs densely scattered mature: glabrescent
• indumentum	abaxial surface	appressed, minute, dentate; hairs all over	young: appressed, long; hairs moderately scattered mature: appressed, long; hairs moderately scattered
Petioles			
• length (mm)		17.26 ± 3.60	11.78 ± 1.59
Inflorescences			
• position		axillary/ terminal	axillary
• sessile/ pedunculate		pedunculate	sessile
• clustering		solitary/ in clusters of 3	solitary/ in clusters of 2
• type		spike	spike
• shape		young: hemispheric-ovoid	young: subglobose
		mature: cylindrical	mature: cylindrical
• rachis with hairs		x	x

Key to the symbols used:

√: present; x: absent; n.a.: not available

Table 7: Continued.

CHARACTERS		<i>A. brasiliana</i>	<i>A. paronychioides</i>
Bracts			
• number		1	3
• shape		ovate	convex lanceolate
• size	length (mm)	2.61 ± 0.23	2.42 ± 0.19
	width (mm)	0.89 ± 0.08	1.27 ± 0.16
• apex		midrib excurrent, mucronate	midrib excurrent, mucronate
• nerve		1	1
• indumentum	abaxial surface	long hairs densely scattered at the upper part	glabrous
	adaxial surface	glabrous	glabrous
• other		white, scarios	white, scarios
Bracteoles			
• number		2	x
• shape		lanceolate	x
• apex		mucronate	x
• size	length (mm)	3.27 ± 0.24	x
	width (mm)	1.08 ± 0.14	x
• nerve		1	x
• indumentum	abaxial surface	long, straight; hairs projecting slanting upwards at the upper part	x
	adaxial surface	glabrous	x
• other		white, scarios, folded at the midrib, irregular crest	x
Petals			
• number		5	5
• shape		oblong-lanceolate	lanceolate
• size	equal/ subequal	equal	subequal, outer three larger slightly larger than inner two
	length (mm)	3.80 ± 0.23	outer: 4.07 ± 0.22 inner: 2.73 ± 0.11
	width (mm)	0.95 ± 0.09	outer: 1.12 ± 0.11 inner: 1.08 ± 0.09

Key to the symbols used:

√: present; x: absent; n.a.: not available

Table 7: Continued.

CHARACTERS		<i>A. brasiliana</i>	<i>A. paronychioides</i>
Petals			
• margin		entire	entire
• nerve		three prominent up to the apex	three prominent up to middle part
• Indumentum	abaxial surface	appressed, straight; hairs all over the petal	outer: long, straight; hairs moderately scattered at the lower part inner: a few hairs
• Indumentum	adaxial surface	glabrous	outer: glabrous inner: glabrous
• colour		white except green at the base	white except green at the base
• other		scarious	scarious, inner petal folded at the midrib,
Androecium			
• stamen	number	5	5
	length (mm)	1.47 ± 0.09	0.87 ± 0.24
• filament		fuse for most of their length to form a cylindrical tube	fuse at the base to form a short cup
• anther	shape	oblong	oblong
	pollen grains	x	√
• pseudostaminodes	length	slightly longer/ as long as the stamen	half the length of the stamen
	apex	narrowly triangular; irregularly dentate or laciniate	broadly short-dentate.
	colour	white, yellow at the apex	light green
Gynoecium			
• ovary	number	1	1
	shape	obovoid	obcordate
	length (mm)	0.86 ± 0.02	0.82 ± 0.04
	colour	light green	light green
• stigma		capitate	capitate
• style	length (mm)	0.21 ± 0.02	0.08 ± 0.01

Table 7: Continued.

CHARACTERS		<i>A. ficoidea</i>	<i>A. bettzickiana</i>
Type		herb	herb
Growth Habit		perennial	perennial
	terrestrial area	dry/ wet area	dry/ shady area
	aquatic area	decumbent, ascending	erect, ascending
		decumbent, ascending	not found in the field
Stems			
• rooting at the node	terrestrial area	taproot and fibrous roots robust	taproot and fibrous roots robust
	aquatic area	long rootlets	not found in the field
• fistular/ solid	terrestrial area	solid	solid
	aquatic area	fistular	not found in the field
• colour		green, except tinged purple at the node	green, except tinged purple at the node
• hair	young stem	flexuous long; hairs all over	appressed straight to curved; hairs all over
	mature stem	glabrescent	appressed; straight to curved; moderately scattered
• other		striate, terete	striate, terete
Leaves			
• arrangement		opposite	opposite
• shape		lanceolate, oblanceolate, elliptic, ovate, undulating	lanceolate, oblanceolate, elliptic
• size	length (mm)		
	• aquatic	not found in the field	not found in the field
	• terrestrial	47.28 ± 8.22	54.98 ± 6.51
	width (mm)		
	• aquatic	not found in the field	not found in the field
	• terrestrial	17.23 ± 3.66	20.53 ± 3.04

Table 7: Continued.

CHARACTERS		<i>A. ficoidea</i>	<i>A. bettzickiana</i>
Leaves			
• apex		acute/ acuminate, with mucro	obtuse/ round, with mucro
• base		long attenuate into an distinctly demarcated petiole	long attenuate into an distinctly demarcated petiole
• margin	fimbriate	sparsely serrate	undulate
		x	x
• mucro		fine	fine
• colour		green and not variegated	green or variegated with white
• indumentum	adaxial surface	young: appressed, long; hairs densely scattered mature: glabrescent	young: appressed, long; hairs densely scattered mature: glabrescent
• indumentum	abaxial surface	young: appressed, long; hairs densely scattered mature: glabrescent	young: appressed, long; hairs densely scattered mature: glabrescent
Petioles			
• length (mm)		14.13 ± 4.05	15.45 ± 2.39
Inflorescences			
• position		axillary	axillary
• sessile/ pedunculate		sessile	sessile
• clustering		solitary/ in clusters of 2	solitary/ in clusters of 2
• type		spike	spike
• shape		subglobose	subglobose
• rachis with hairs		x	x

Key to the symbols used:
√: present; x: absent; n.a.: not available

Table 7: Continued.

CHARACTERS		<i>A. ficoidea</i>	<i>A. bettzickiana</i>
Bracts			
• number		1	1
• shape		ovate	ovate
• size	length (mm)	3.19 ± 0.13	2.81 ± 0.21
	width (mm)	1.16 ± 0.09	1.08 ± 0.09
• apex		midrib excurrent, mucronate	midrib excurrent, mucronate
• nerve		1	1
• indumentum	abaxial surface	long hairs sparsely scattered at the upper part	short hairs moderately scattered at the lower part
	adaxial surface	glabrous	glabrous
• other		white, scarious	white, scarious
Bracteoles			
• number		2	2
• shape		lanceolate	lanceolate
• apex		midrib excurrent, mucronate	midrib excurrent, mucronate
• size	length (mm)	3.90 ± 0.25	3.45 ± 0.23
	width (mm)	1.22 ± 0.12	2.79 ± 0.24
• nerve		1	1
• indumentum	abaxial surface	long, straight hairs projecting slanting upwards along the midrib	long, straight hairs projecting slanting upwards at the lower part
	adaxial surface	glabrous	glabrous
• other		white, scarious, folded at the midrib	white, scarious, folded at the midrib
Petals			
• number		5	5
• shape		lanceolate	oblong-lanceolate
• size	equal/ subequal	subequal, outer three larger slightly larger than inner two	subequal, outer three larger slightly larger than inner two
	length (mm)	outer: 5.18 ± 0.10 inner: 4.56 ± 0.20	outer: 4.86 ± 0.2 inner: 4.34 ± 0.21
	width (mm)	outer: 0.86 ± 0.04 inner: 0.82 ± 0.06	outer: 1.44 ± 0.15 inner: 1.22 ± 0.11

Table 7: Continued.

CHARACTERS		<i>A. ficoidea</i>	<i>A. bettzickiana</i>
Petals			
• margin		entire	entire
• nerve		three prominent up to middle part	three prominent up to middle part
• Indumentum	abaxial surface	outer: long, straight hairs projecting slanting upwards; along the petal inner: a few hairs along the midrib	outer: long, straight hairs projecting slanting upwards; up to the middle part inner: glabrous
• Indumentum	adaxial surface	outer: glabrous inner: glabrous	outer: glabrous inner: glabrous
• colour		white	white
• other		scarious, inner petal folded at the midrib	scarious, inner petal folded at the midrib
Androecium			
• stamen	number	5	5
	length (mm)	2.45 ± 0.13	0.99 ± 0.06
• filament		fuse at the base to form a short cup	fuse at the base to form a short cup
• anther	shape	oblong	oblong
	pollen grains	√	√/ x
• pseudostaminodes	length	slightly longer/ as long as the stamen	slightly longer/ as long as the stamen
	apex	narrowly triangular; irregularly dentate or laciniate	narrowly triangular; irregularly dentate or laciniate
	colour	white, yellow at the apex	white, yellow at the apex
Gynoecium			
• ovary	number	1	1
	shape	subconical	subconical
	length (mm)	0.71 ± 0.05	0.49 ± 0.04
	colour	light green	light green
• stigma		capitate	capitate
• style	length (mm)	0.15 ± 0.02	0.31 ± 0.02