

Table 10: Embryological characters of *Alternanthera* species.

CHARACTERS	<i>A. sessilis</i>		<i>A. paronychioides</i>
	red leaf form	green leaf form	
Anther wall development			
• Type	monocotyledonous	monocotyledonous/ dicotyledonous	monocotyledonous/ dicotyledonous
• Number of anther wall layers	4	4	4
Epidermis			
• number of layers	1	1	1
• occurrence of tannins	x	x	meiosis of mic
Endothecium			
• number of layers	1	1	1
• development of fibrous thickening	1-celled microspores	1-celled microspores	1-celled microspores
• occurrence of ubisch granules	2-celled microspores	2-celled microspores	2-celled microspores
Middle layer			
• number of layers	1	1	1
• degeneration	microspore tetrad	microspore tetrad	microspore tetrad
Tapetum			
• number of layers	1	1	1
• type	glandular	glandular	glandular
• multinucleate/ uninucleate	multinucleate	multinucleate	multinucleate
• degeneration	2-celled microspores	2-celled microspores	2-celled microspores
• occurrence of ubisch granules	1-celled microspores	1-celled microspores	1-celled microspores
Male gametophyte			
• Type of cytokinesis	simultaneous cytokinesis	simultaneous cytokinesis	simultaneous cytokinesis
• Type of microspore tetrad	tetrahedral, isobilateral & decussate	tetrahedral, isobilateral & decussate	tetrahedral & isobilateral
• Mature pollen grain	3-celled	3-celled	3-celled
Development of ovule			
• Type of ovule	campylotropus	campylotropus	campylotropus
• Type of nucellus	crassinucellate	crassinucellate	crassinucellate
• Type of integument	bitegmic	bitegmic	bitegmic
• Floral nectar	√	√	√

Key to the symbols used:

√: present; x: absent; n.a.: not available; mic: microspore mother cell

Table10: Continued.

CHARACTERS		<i>A. sessilis</i>		<i>A. paronychioides</i>
		red leaf form	green leaf form	
Female gametophyte				
•Type of archesporium		n.a	unicellular	unicellular
•Number of sporogenous cell		1/ >1	1	1
•Type of megaspore tetrads		linear tetrad	linear tetrad	n.a.
•Functional megaspore		chalazal megaspore	chalazal megaspore	n.a.
Mature embryo sac				
• Type of embryo sac		monosporic 8-nucleate <i>Polygonum</i>	monosporic 8-nucleate <i>Polygonum</i>	monosporic 8-nucleate <i>Polygonum</i>
• Organization	Antipodals			
	• type	cellular	cellular	cellular
	• number of cells	3	3	3
	Two polar nuclei			
	• occurrence of fusion	before fertilization	before fertilization	before fertilization
	Egg cell	pear-shaped	pear-shaped	pear-shaped
	Synergids	hooked & has filiform apparatus	hooked & has filiform apparatus	hooked & has filiform apparatus
Fertilization				
• Type		porogamous	porogamous	porogamous
• Number of pollen tube at the micropyle		1/ >1	1/ >1	n.a.
• Elongation of embryo sac		before fertilization	during or after fertilization	during or after fertilization
Post fertilization				
• Number of zygotes		1/ >1	1	1
Endosperm development				
• Type		<i>ab initio</i> Nuclear	<i>ab initio</i> Nuclear	<i>ab initio</i> Nuclear
• Cell wall formation		late globular embryo	late globular embryo	late globular embryo
Embryogeny				
• Type		transitional form between the Chenopodiad-type and Solanad-type		n.a.
• Number of embryo		1	1	1
Seed coat				
• Number of layers		1	1	1
• Presence of cuticle		x	x	√
• Presence of tannins		√	√	√

Key to the symbols used:

√: present; x: absent; n.a.: not available; mic: microspore mother cell

Table 10: Continued.

CHARACTERS	<i>A. ficoidea</i>	<i>A. brasiliiana</i> (parent plants)	<i>A. betzickiana</i>
Anther wall development			
• type	monocotyledonous/ dicotyledonous	monocotyledonous	monocotyledonous/ dicotyledonous
• number of anther wall layers	4	4	4
Epidermis			
• number of layers	1	1	1
• occurrence of tannins	tetrad microspores	tetrad microspores	meiosis of mic
Endothecium			
• number of layers	1	1	1
• development of fibrous thickening	1-celled microspores	x	1-celled microspores
• occurrence of ubisch granules	2-celled microspores	x	post meiosis of mic
Middle layer			
• number of layers	1	1	1
• degeneration	microspore tetrad	microspore tetrad	microspore tetrad
Tapetum			
• number of layers	1	1	1
• type	glandular	glandular	glandular
• multinucleate/ uninucleate	multinucleate	multinucleate	multinucleate
• degeneration	2-celled microspores	during microsporogenesis/ post meiosis of mic	post meiosis of mic
• occurrence of ubisch granules	1-celled microspores	x	2-celled microspores
Male gametophyte			
• Type of cytokinesis	simultaneous cytokinesis	simultaneous cytokinesis	simultaneous cytokinesis
• Type of microspore tetrad	tetrahedral & isobilateral	tetrahedral	tetrahedral and isobilateral
• Mature pollen grain	3-celled	x	x
Development of ovule			
• Type of ovule	campylotropus	campylotropus	campylotropus
• Type of nucellus	crassinucellate	crassinucellate	crassinucellate
• Type of integument	bitegmic	bitegmic	bitegmic
• Floral nectar	√	x	√

Key to the symbols used:

√: present; x: absent; n.a.: not available; mic: microspore mother cell

Table 10: Continued.

CHARACTERS	<i>A. ficoidea</i>	<i>A. brasiliiana</i> (parent plants)	<i>A. bettzickiana</i>
Female gametophyte			
•Type of archesporium	n.a.	n.a.	unicellular
•Number of sporogenous	1	1	1
•Type of megaspore tetrads	n.a.	n.a.	n.a.
•Functional megaspore	n.a.	n.a.	n.a.
Mature embryo sac			
• Type of embryo sac	n.a.	n.a.	n.a.
• Organization	Antipodals		
	• type	cellular	n.a.
	• number of cells	3	n.a.
	Two polar nuclei		
	• occurrence of fusion	before fertilization	n.a.
	Egg cell	pear-shaped	n.a.
	Synergids	hooked and has filiform apparatus	n.a.
Fertilization			
• Type	n.a.	x	x
• Number of pollen tube at the micropyle	n.a.	x	x
• Elongation of embryo sac	n.a.	n.a.	n.a.
Post fertilization			
• Number of zygotes	1	1/ >1	x
Endosperm development			
• Type	<i>ab initio</i> Nuclear	autonomous	n.a.
• Cell wall formation	n.a.	late globular embryo	n.a.
Embryogeny			
• Type	n.a.	adventitive nucellar embryony	n.a.
• Number of embryo	1	1 or 2	n.a.
Seed coat			
• Number of layers	1	1	n.a.
• Presence of cuticle	x	x	n.a.
• Presence of tannins	√	√	n.a.

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√: present; x: absent; n.a.: not available; mic: microspore mother cell