

Table S1. Historical review of terminology applied to cambial variants in Nyctaginaceae.

Reference	Cambial variant	Origin of the cambial variant	Name of the meristem of origin	Products of the meristem	Taxa
De Bary 1884	Secondary thickening (= successive cambia)	Outer margins of the phloem	Extra-fascicular cambium	Vascular bundles to the inner side	<i>Mirabilis jalapa</i>
Schenck 1893	Successive cambia	Pericycle	Cambium	Concentric rings of xylem, separated by conjunctive tissue with phloem strands within it	<i>Bougainvillea spectabilis</i> ; <i>Pisonia aculeata</i> ;
Solereder 1908	Anomalous structure (=successive cambia)	Pericycle	Cambium	Secondary collateral bundles and conjunctive tissue to the inner side	<i>Boerhavia plumbaginea</i> ; <i>B. arborea</i> ; <i>Bougainvillea spectabilis</i> ; <i>Cryptocarpus</i> sp.; <i>Leucaster caniflorus</i> ; <i>Mirabilis jalapa</i> ; <i>Neea</i> sp.; <i>Phaeoptilum</i> sp.; <i>Pisonia fragrans</i> ; <i>P. hirtella</i> ; <i>P.</i>

					<i>nigricans</i> ;
Pfeiffer 1926	Successive cambia (<i>corpus lignosum circumvallatum</i>)	Pericycle	Cambium	Rings of xylem, conjunctive tissue and phloem strands	<i>Boerhavia arborea</i> ; <i>Bougainvillea</i> ; <i>Cryptocarpus</i> ; <i>Leucaster</i> ; <i>Mirabilis</i> ; <i>Neea</i> ; <i>Phaeoptilum</i> ; <i>Pisonia</i> ; <i>Rockia</i> .
Maheshwari 1930	Successive cambia	Underneath the cortex	Meristematic zone (cambium)	Xylem and conjunctive tissue to the inner side; Phloem <i>within</i> the zone.	<i>Boerhavia diffusa</i> ;
	Successive cambia	Pericycle or cortex	-	Xylem internally; phloem externally	<i>Bougainvillea spectabilis</i> ; <i>Colignonia scandens</i> ;
Chalk and Chattaway 1937	Interxylary phloem (<i>Corpus lignosum foraminatum</i>)	Single vascular cambium	Cambium	Included strands of phloem inside the xylem;	<i>Guapira broadwayana</i> ; <i>Guapira discolor</i> ; <i>Neea amplifolia</i> ; <i>N. laetevirens</i> ; <i>N. pittieri</i> ; <i>N. psychotrioides</i> ; <i>N. urophylla</i> ; <i>Pisonia aculeata</i> ; <i>P. albida</i> ; <i>P. linguistifolia</i> ; <i>P. macranthocarpa</i> ; <i>P. nishimurae</i> ; <i>P. obtusa</i> ; <i>P.</i>

					<i>sandwicensis</i> ; <i>P. subcordata</i> ; <i>Neea amplifolia</i> ; <i>N. laetevirens</i> ; <i>N. pittieri</i> ; <i>N. psychotrioides</i> ; <i>N. urophylla</i> ;
	Anomalous secondary thickening (succession of rings)	Single vascular cambium	Secondary meristem	Secondary bundles	<i>Boerhavia verticillata</i> ; <i>Bougainvillea spectabilis</i> ; <i>Colignonia scandens</i> ; <i>Leucaster caniflorus</i> ; <i>Mirabilis</i> <i>sp.</i> ; <i>Neea sp.</i> ; <i>Phaeoptilum sp.</i> ; <i>Pisonia sp.</i> ; <i>Reichenbachia sp.</i> ;
	Phloem in islands				<i>Guapira sp.</i> ; <i>Neea sp.</i> ; <i>Pisonia</i> <i>sp.</i>
Balfour and Philipson 1962	Intraxylary phloem	Meristematic ring	Extra-fascicular cambium	-	<i>Bougainvillea spectabilis</i>
Philipson and Ward 1965	Anomalous secondary growth (=successive cambia)	External to primary bundles	Unidirectional cambium	Xylem internally; Phloem <i>within</i> the meristematic zone	<i>Boerhavia</i> , <i>Mirabilis</i>
Esau and Cheadle 1969	Successive	The parenchyma beneath	Meristematic tissue	Xylem and conjunctive tissue	<i>Bougainvillea spectabilis</i>

	cambia	the perivascular fibres	(cambium)	to the inside, phloem and conjunctive tissue to the outside	
Balfour 1965	No especial name is given	Cortex	Meristematic zone (cambium)	Xylem internally; Phloem <i>within</i> the meristematic zone	<i>B. spectabilis; Pisonia brunonianum</i>
Studholme and Philipson 1966	Included phloem	Cortex	Meristematic zone; cambium	Xylem to the inside and parenchyma to the outside. Strands of phloem differentiate within the meristematic zone.	<i>Pisonia brunonianum</i>
Pulawska 1973	No especial name is given	Procambium of peripheral bundles, and outside them	Parenchymo-vascular cambium	Secondary parenchyma to the outside and secondary vascular bundles and conjunctive tissue inside	<i>Bougainvillea glabra</i>
Stevenson and Popham 1973	Anomalous secondary thickening	Pericycle	“Primary thickening meristem”	Complete bundles to the inside	<i>Bougainvillea spectabilis</i>

Phillips 1976	Successive cambia	Pericycle/parenchyma outside the phloem	Cambium	Conjunctive tissue, phloem and xylem, forming small collateral vascular bundles	<i>Allionia incarnata</i> ; <i>A. choisyi</i>
Mikesell and Popham 1976	<i>Corpus lignosum foraminatum</i> from Pfeiffer's	Pericycle	"Primary thickening meristem"	Conjunctive tissue to the inside and outside; vascular tissue to the inside.	<i>Mirabilis jalapa</i>
Zamski 1980	Anomalous secondary thickening	Outside the vascular bundles	"Primary thickening meristem" (vascular cambium)	Conjunctive tissue and complete bundles to the inside	<i>Bougainvillea glabra</i>
Rajput and Rao 1998	Successive rings	Outermost phloem cells	-	Xylem internally; phloem externally	<i>Boerhavia diffusa</i> ; <i>B. rependa</i> ; <i>B. verticillata</i>
Carlquist 2004	Successive cambia	Cortex	Lateral meristem	Conjunctive tissue, vascular cambium (and its products) and rays to the inside, and "secondary cortex" to the outside.	<i>Abronia latifolia</i> ; <i>Bougainvillea spectabilis</i> ; <i>Guapira discolor</i> ; <i>G. guianensis</i> ; <i>G. cuspidata</i> ; <i>Mirabilis jalapa</i> ; <i>Neea macrophylla</i> ; <i>P.</i>

					<i>brunonianum</i> ; <i>P. rotundata</i> ;
					<i>Abronia latifolia</i> ; <i>Bougainvillea</i>
				Conjunctive tissue, vascular	<i>spectabilis</i> ; <i>Guapira discolor</i> ;
				cambium (and its products)	<i>G. guianensis</i> ; <i>G. cuspidata</i> ;
Carlquist 2007, 2010	Successive cambia	Cortex	Master cambium	and rays to the inside, and “secondary cortex” to the outside.	<i>Mirabilis jalapa</i> ; <i>Neea</i> <i>macrophylla</i> ; <i>P. brunonianum</i> ; <i>P. rotundata</i> ; and species from other families.
				Conjunctive tissue	
				centripetally and	
Rajput et al. 2009	Successive cambia	Cortex	Master cambium	centrifugally; vascular	<i>Mirabilis jalapa</i>
				cambium and its products to the inside	
				New cambia with xylem	
Hernández-Ledesma et al. 2011	Successive cambia	Cortex	Master cambium	internally and phloem externally	
Schweingruber 2011	Successive cambia	-	-	Vascular bundles	<i>Abronia fragrans</i> ; <i>A. latifolia</i> ; <i>Bougainvillea spectabilis</i> ; <i>B.</i>

					<i>spinosa; Commicarpus boissieri.</i>
Lopes et al. 2008	Interxylary phloem	-	Cambium	-	<i>Pisonia aculeata</i>
Sonsin et al. 2014	Interxylary phloem	-	-	-	<i>Guapira noxia</i>
				A new cambium is formed from the meristematic zone and forms variant xylem internally and variant phloem externally; conjunctive tissue is formed between new increments of vascular tissue.	<i>Allionia choisyi, Allionia incarnata.</i>
Cunha Neto et al., in press	Successive cambia	Pericycle	Meristematic zone		

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