

Adam Miodek^{1,2} · Aldona Paulina Miodek¹ · Paweł Kojas^{1,2}

Wood fiber bodies of *Robinia pseudoacacia* increase their transverse surface area without cell wall expansion

¹ Polish Academy of Sciences Botanical Garden – Centre for Biological Diversity Conservation in Powsin, Prawdziwka 2, 02-973 Warsaw, Poland

² Silesian Botanical Garden, Sosnowa 5, 43-190 Mikołów, Poland

Supplementary Information

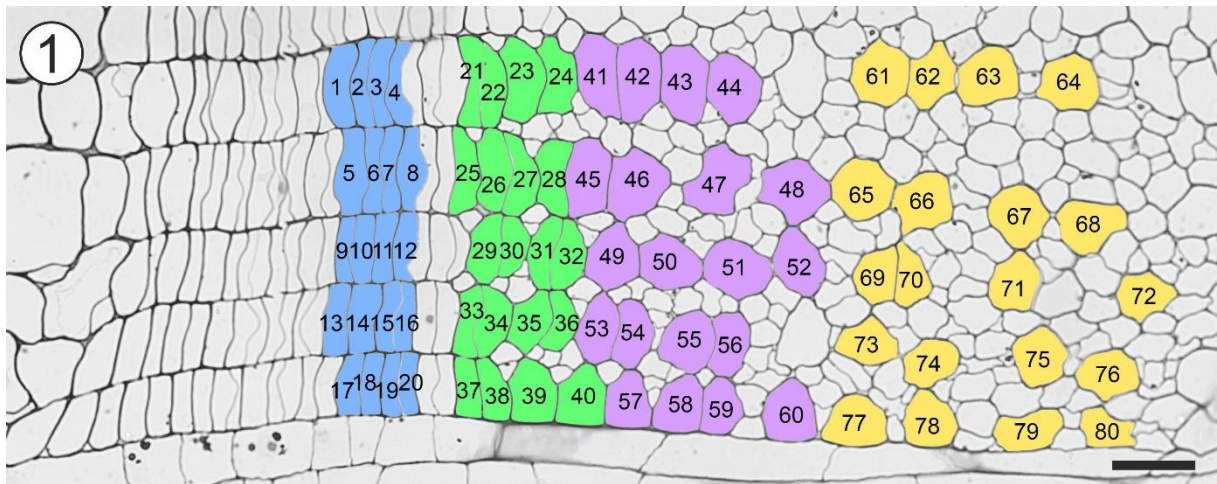


Fig. S1 First of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

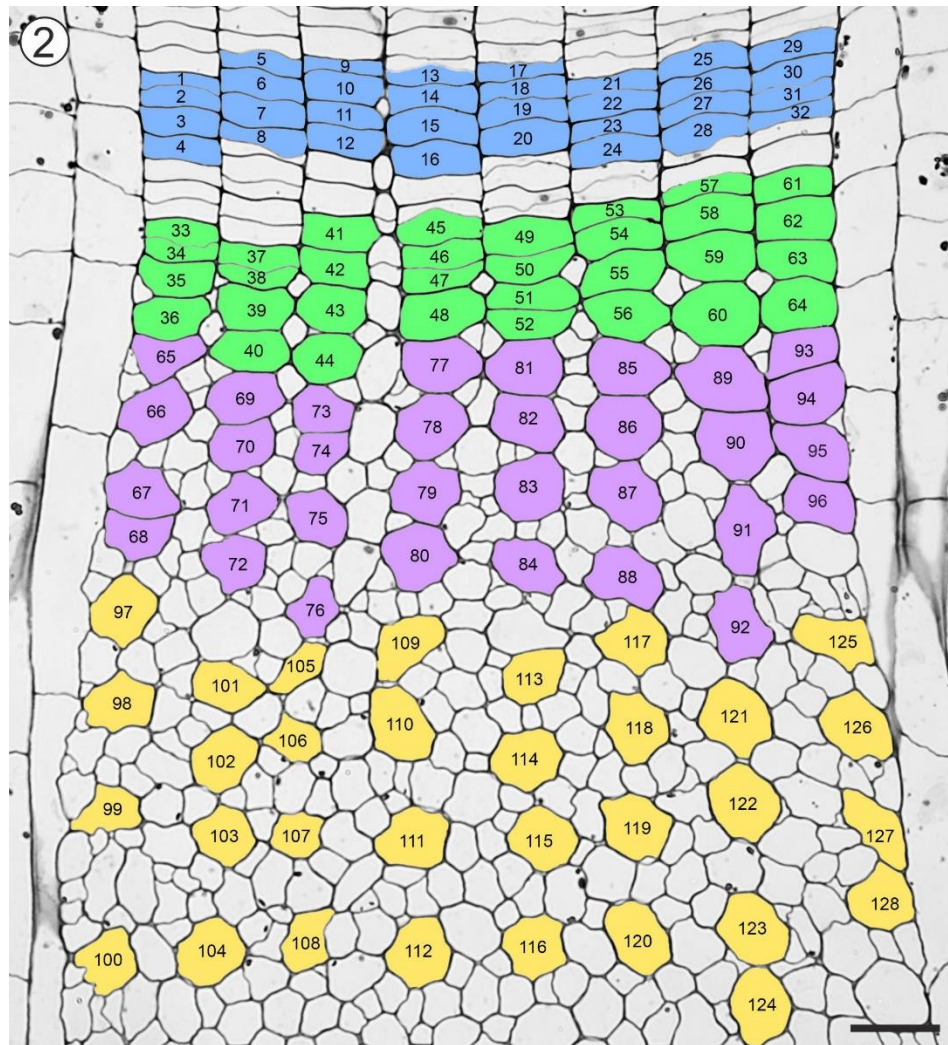


Fig. S2 Second of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

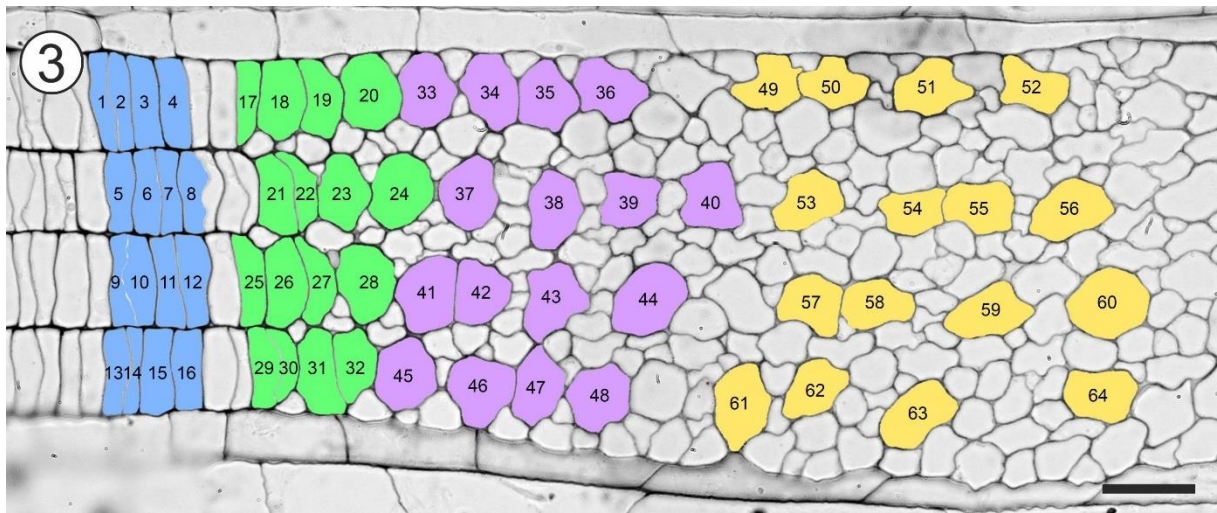


Fig. S3 Third of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

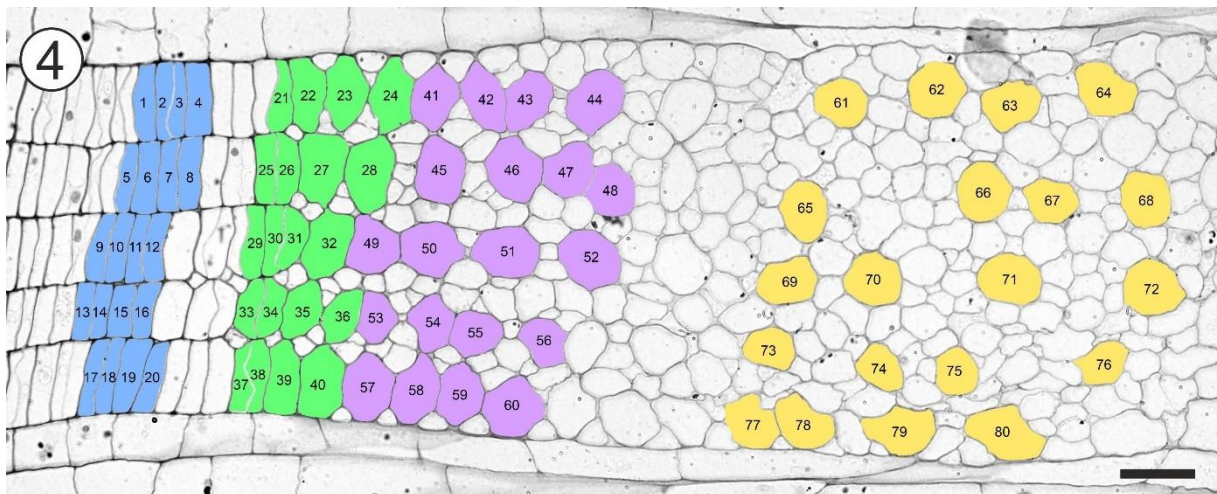


Fig. S4 Fourth of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

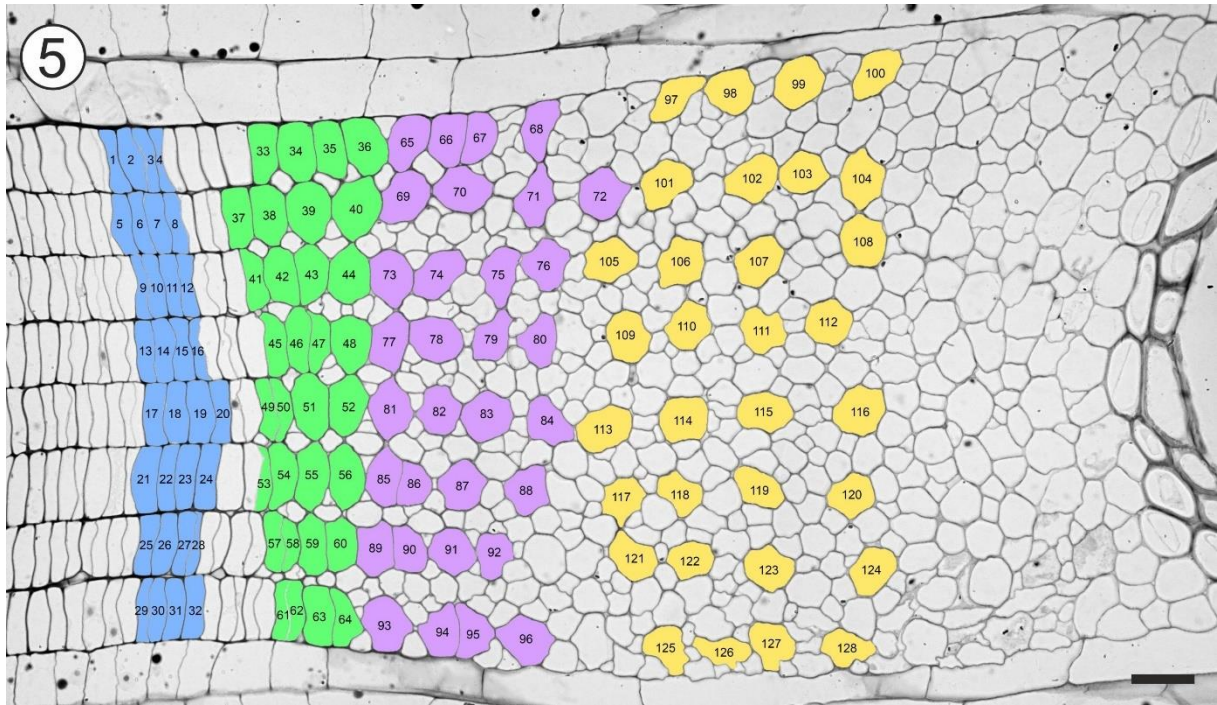


Fig. S5 Fifth of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

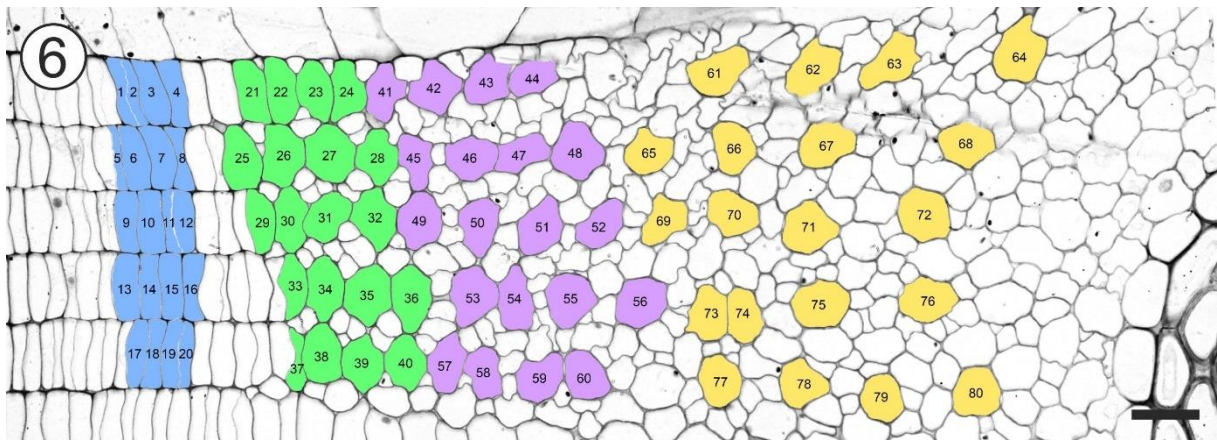


Fig. S6 Sixth of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

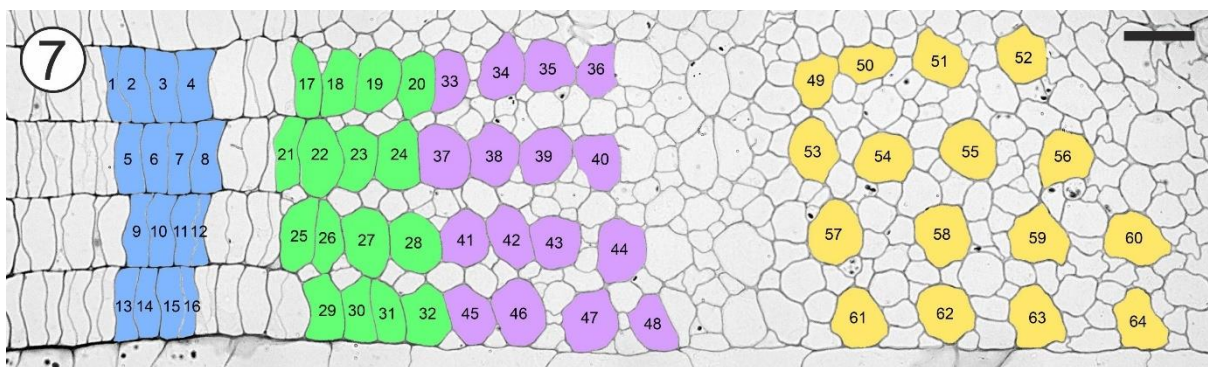


Fig. S7 Seventh of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

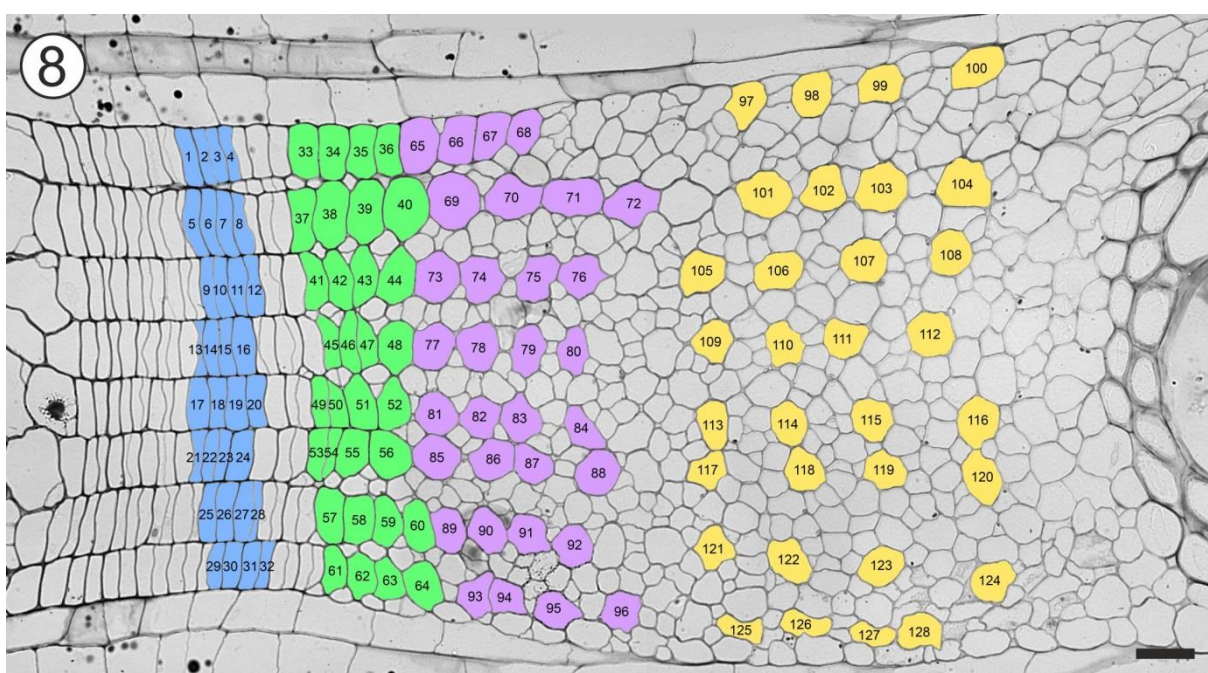


Fig. S8 Eight of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

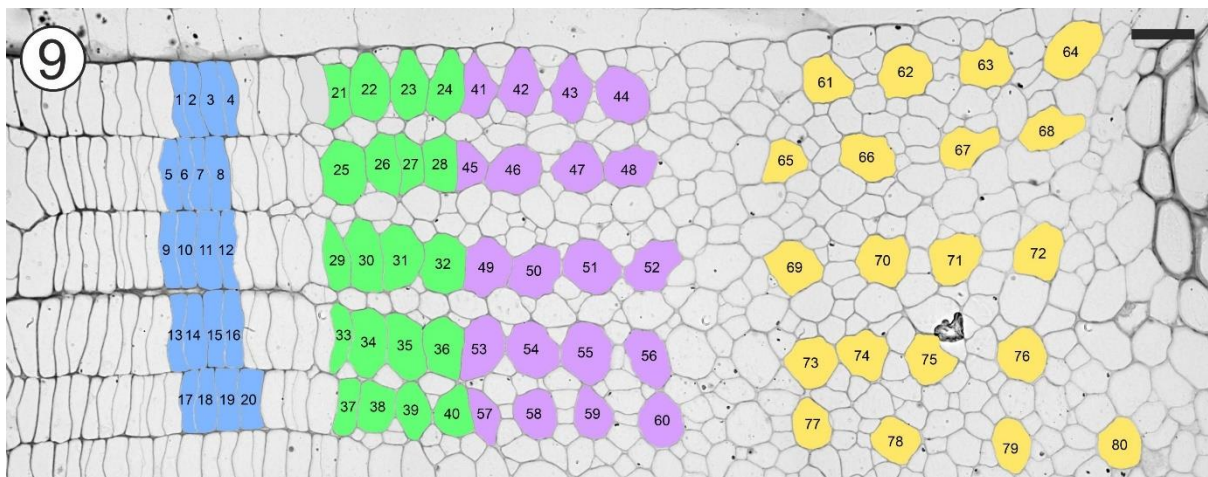


Fig. S9 Ninth of nine transverse sections of analyzed fragments (numbered 1–9) of *Robinia pseudoacacia* L. tissues. There are four designated zones. Color codes: zone 1 – blue; zone 2 – green; zone 3 – violet; zone 4 – yellow. Scale bar = 20 μ m

Table S1. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 1st fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	143.27	58.43	I		21	115.23	62.18	I		41	188.21	62.06	I		61	191.58	57.14
		2	87.95	58.06			22	106.53	53.20			42	200.56	60.55			62	144.29	54.22
		3	104.11	59.06			23	184.59	61.11			43	201.76	59.16			63	186.46	55.76
		4	86.60	55.62			24	143.81	58.01			44	188.48	56.06			64	174.42	55.22
	II	5	147.29	59.46	II		25	122.08	58.14	II		45	190.78	59.42	II		65	191.46	55.72
		6	87.19	57.37			26	148.04	56.02			46	211.98	60.64			66	178.36	58.47
		7	93.67	56.11			27	126.03	58.50			47	202.60	63.70			67	177.10	54.79
		8	114.04	54.19			28	133.78	55.68			48	203.11	61.03			68	177.36	56.73
	III	9	60.26	44.34	III		29	123.69	50.49	III		49	170.94	55.44	III		69	125.68	46.62
		10	93.22	46.62			30	85.95	42.83			50	172.32	52.89			70	102.13	47.62
		11	88.63	49.53			31	102.04	50.37			51	197.92	56.11			71	149.01	49.59
		12	84.52	46.38			32	116.42	48.75			52	166.57	54.10			72	127.72	49.68
	IV	13	105.30	51.27	IV		33	90.01	51.18	IV		53	142.54	51.43	IV		73	135.83	49.49
		14	127.61	52.04			34	121.47	51.70			54	134.01	50.97			74	133.62	46.91
		15	76.75	47.98			35	121.25	48.11			55	183.92	56.54			75	156.58	52.21
		16	74.47	46.14			36	88.51	46.56			56	129.41	49.78			76	148.22	52.57
	V	17	87.66	45.21	V		37	89.02	43.28	V		57	138.03	49.19	V		77	171.99	52.95
		18	76.22	43.43			38	99.76	45.85			58	150.51	49.32			78	152.42	50.50
		19	66.06	42.56			39	164.05	52.68			59	117.92	45.24			79	142.56	50.70
		20	66.37	41.88			40	162.46	51.76			60	172.55	53.58			80	102.45	51.78
	Avg.		93.56	50.78	Avg.		122.24	52.32	Avg.		173.21	55.36	Avg.		153.46	52.43			
	Min		60.26	41.88	Min		85.95	42.83	Min		117.92	45.24	Min		102.13	46.62			
	Max		147.29	59.46	Max		184.59	62.18	Max		211.98	63.70	Max		191.58	58.47			
	SD		24.06	6.09	SD		27.51	5.58	SD		28.63	5.07	SD		27.30	3.51			

Table S2. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 1st fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Cell					Cell					Cell					Cell				
Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT
Zone 1 (vascular cambium)	I	1	21.01	6.59	I		21	22.82	3.12	I		41	19.32	9.90	I		61	16.49	14.45
		2	22.18	4.29			22	20.55	6.62			42	20.64	11.04			62	14.25	11.14
		3	22.08	5.23			23	21.10	9.90			43	19.12	11.46			63	14.38	14.94
		4	21.43	3.28			24	18.96	7.69			44	17.95	13.64			64	13.90	13.93
	II	5	21.92	7.82	II		25	22.40	6.14	II		45	19.32	10.94	II		65	15.06	15.45
		6	21.59	3.41			26	21.01	8.28			46	17.11	15.58			66	13.96	15.03
		7	21.66	3.86			27	20.55	6.79			47	18.08	15.65			67	16.14	15.32
		8	21.36	7.63			28	19.22	6.01			48	17.14	18.21			68	13.47	17.27
	III	9	16.56	3.28	III		29	17.27	8.18	III		49	16.72	13.44	III		69	13.21	10.94
		10	17.37	5.94			30	15.29	6.69			50	14.25	15.84			70	15.42	8.51
		11	17.53	4.45			31	17.92	6.33			51	14.32	17.55			71	15.03	12.73
		12	17.44	6.27			32	17.37	8.93			52	16.14	13.12			72	12.05	15.16
	IV	13	18.15	5.94	IV		33	17.21	4.45	IV		53	17.66	10.45	IV		73	11.92	15.84
		14	17.40	7.21			34	17.82	8.93			54	17.60	9.32			74	12.19	13.85
		15	17.82	4.35			35	13.60	10.23			55	15.84	13.67			75	14.84	13.51
		16	17.53	5.36			36	15.32	6.88			56	16.20	8.57			76	12.37	15.81
	V	17	15.23	6.01	V		37	14.87	5.94	V		57	14.77	10.84	V		77	13.18	14.58
		18	15.75	5.19			38	15.68	7.40			58	14.77	11.72			78	14.48	12.95
		19	15.97	4.38			39	16.27	11.53			59	14.58	10.00			79	8.99	16.92
		20	15.94	4.38			40	15.65	12.14			60	15.94	12.86			80	7.92	13.41
	Avg.		18.80	5.24	Avg.		18.04	7.61	Avg.		16.87	12.69	Avg.		13.46	14.09			
	Min		15.23	3.28	Min		13.60	3.12	Min		14.25	8.57	Min		7.92	8.51			
	Max		22.18	7.82	Max		22.82	12.14	Max		20.64	18.21	Max		16.49	17.27			
	SD		2.51	1.40	SD		2.67	2.23	SD		1.86	2.75	SD		2.15	2.11			

Table S3. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 2nd fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	43.80	42.27	I		33	66.88	39.90	I		65	100.55	46.39	I		97	140.15	48.83
		2	65.03	42.20			34	52.86	40.22			66	141.47	48.85			98	129.09	48.71
		3	89.54	44.87			35	102.03	45.88			67	130.61	48.01			99	95.02	46.70
		4	80.56	44.29			36	114.23	45.93			68	102.57	45.98			100	116.36	48.52
	II	5	59.31	45.04	II		37	75.12	45.65	II		69	135.84	47.76	II		101	113.04	44.49
		6	88.45	47.22			38	52.00	41.11			70	114.72	44.54			102	132.84	47.37
		7	101.09	47.37			39	125.07	47.99			71	126.65	46.44			103	112.86	43.06
		8	75.38	47.68			40	115.41	44.82			72	116.71	44.35			104	145.94	49.05
	III	9	40.69	42.75	III		41	105.47	46.06	III		73	98.63	39.85	III		105	65.75	36.74
		10	96.06	44.88			42	94.43	42.80			74	76.09	36.11			106	74.45	38.18
		11	71.14	41.49			43	118.91	44.09			75	113.77	42.91			107	77.55	37.07
		12	90.20	44.04			44	118.63	43.16			76	85.87	40.55			108	95.45	44.70
	IV	13	56.74	43.80	IV		45	96.05	48.15	IV		77	150.39	49.97	IV		109	128.83	48.18
		14	91.44	52.24			46	81.33	44.98			78	152.94	49.14			110	156.14	51.30
		15	124.21	52.29			47	67.91	44.38			79	140.48	48.70			111	145.26	50.41
		16	120.89	50.23			48	152.43	51.63			80	156.67	50.83			112	144.61	49.44
	V	17	54.16	46.74	V		49	123.45	50.76	V		81	153.72	49.08	V		113	114.34	42.13
		18	70.85	46.67			50	92.61	48.78			82	141.23	48.18			114	142.15	48.31
		19	83.51	49.12			51	97.55	49.02			83	162.38	49.56			115	136.18	46.93
		20	121.09	49.69			52	91.58	47.94			84	126.36	46.94			116	130.23	48.32
	VI	21	64.28	49.83	VI		53	70.32	49.66	VI		85	160.26	50.64	VI		117	135.42	49.43
		22	86.38	48.09			54	111.54	49.33			86	168.62	51.28			118	140.93	49.50
		23	72.73	48.19			55	124.82	50.78			87	158.45	51.75			119	148.08	51.23
		24	103.25	50.15			56	142.41	50.61			88	148.33	50.59			120	145.94	50.26
	VII	25	94.48	49.28	VII		57	65.20	48.59	VII		89	198.95	58.05	VII		121	170.18	53.35
		26	82.43	50.97			58	139.65	55.09			90	187.71	55.56			122	171.29	52.61
		27	79.90	50.39			59	161.90	53.33			91	164.50	56.05			123	162.71	51.48
		28	104.30	48.36			60	198.77	55.49			92	143.90	50.43			124	151.44	49.46
	VIII	29	87.43	49.60	VIII		61	94.55	45.74	VIII		93	113.96	47.47	VIII		125	127.48	52.52
		30	84.67	48.11			62	134.20	49.63			94	159.91	50.81			126	154.00	51.87
		31	68.05	44.30			63	120.39	48.36			95	143.53	50.71			127	120.43	52.17
		32	53.67	47.04			64	149.04	49.92			96	131.58	48.12			128	136.33	48.08
		Avg.	81.43	47.16			Avg.	108.02	47.49			Avg.	137.73	48.30			Avg.	130.01	47.83
		Min	40.69	41.49			Min	52.00	39.90			Min	76.09	36.11			Min	65.75	36.74
		Max	124.21	52.29			Max	198.77	55.49			Max	198.95	58.05			Max	171.29	53.35
		SD	21.15	3.01			SD	33.44	3.89			SD	27.98	4.48			SD	26.26	4.35

Table S4. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 2nd fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT
Zone 1 (vascular cambium)		I	1	17.49	3.15		I	33	16.53	6.30		I	65	14.24	9.31		I	97	15.01	16.62
			2	18.05	5.02			34	16.39	3.76			66	16.35	12.75			98	15.85	13.29
			3	17.71	6.36			35	17.03	7.99			67	14.76	12.27			99	12.61	10.24
			4	17.44	5.58			36	17.03	9.87			68	14.63	9.35			100	13.75	14.45
		II	5	18.43	4.39		II	37	17.82	5.62		II	69	17.32	11.84		II	101	16.53	11.16
			6	18.57	6.73			38	17.10	4.28			70	14.70	10.30			102	14.63	14.04
			7	18.93	6.41			39	17.32	9.51			71	15.85	13.43			103	13.86	13.90
			8	19.20	4.23			40	18.23	9.22			72	14.31	12.88			104	15.58	15.19
		III	9	18.03	2.90		III	41	17.30	7.81		III	73	13.56	10.71		III	105	8.90	8.92
			10	17.91	6.64			42	14.99	7.77			74	11.59	9.35			106	13.25	9.96
			11	17.23	5.55			43	15.60	10.73			75	13.00	11.80			107	10.82	10.30
			12	17.57	6.70			44	15.74	11.35			76	11.68	13.45			108	9.53	12.88
		IV	13	20.02	4.33		IV	45	19.45	8.13		IV	77	18.23	11.66		IV	109	13.93	12.95
			14	20.36	5.21			46	18.43	5.89			78	16.19	14.79			110	13.41	16.58
			15	20.70	7.43			47	16.69	5.00			79	15.83	13.99			111	16.08	13.70
			16	19.95	8.24			48	19.00	10.96			80	16.80	15.60			112	14.94	16.08
		V	17	19.72	3.83		V	49	20.49	9.06		V	81	17.69	12.32		V	113	13.00	11.96
			18	19.54	4.48			50	18.52	6.45			82	16.19	11.23			114	16.21	13.77
			19	20.15	4.53			51	20.88	5.48			83	15.33	13.84			115	16.10	14.65
			20	20.27	7.93			52	19.20	6.79			84	14.33	11.59			116	13.88	14.31
		VI	21	20.43	3.60		VI	53	20.20	3.99		VI	85	18.48	12.66		VI	117	16.53	15.04
			22	20.15	5.82			54	19.93	7.45			86	17.12	14.58			118	14.38	15.85
			23	19.95	3.71			55	17.44	8.94			87	16.08	15.44			119	14.99	14.88
			24	20.61	6.43			56	18.43	11.05			88	17.62	11.59			120	12.93	15.92
		VII	25	20.61	6.63		VII	57	20.09	3.53		VII	89	19.79	14.58		VII	121	16.26	16.21
			26	20.43	4.39			58	20.67	8.63			90	17.10	14.99			122	15.81	16.89
			27	20.27	4.71			59	20.13	11.44			91	13.84	20.06			123	16.30	16.15
			28	19.47	8.27			60	19.70	14.29			92	12.70	17.28			124	13.90	17.91
		VIII	29	19.38	5.46		VIII	61	17.84	6.77		VIII	93	15.38	9.40		VIII	125	17.30	8.65
			30	18.27	6.09			62	17.89	9.56			94	17.03	12.64			126	15.42	15.74
			31	18.50	4.66			63	17.73	8.58			95	15.99	11.39			127	9.53	10.78
			32	18.64	3.10			64	17.07	11.46			96	15.83	10.03			128	14.99	15.33
			Avg.	19.19	5.39			Avg.	18.15	8.05			Avg.	15.61	12.72			Avg.	14.26	13.88
			Min	17.23	2.90			Min	14.99	3.53			Min	11.59	9.31			Min	8.90	8.65
			Max	20.70	8.27			Max	20.88	14.29			Max	19.79	20.06			Max	17.30	17.91
			SD	1.12	1.50			SD	1.58	2.63			SD	1.93	2.43			SD	2.14	2.48

Table S5. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 3rd fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	72.28	49.22	Zone 2 (low amount of wood fiber tips)	I	17	70.59	45.82	Zone 3 (medium amount of wood fiber tips)	I	33	144.50	50.61	Zone 4 (high amount of wood fiber tips)	I	49	115.18	52.16
		2	73.94	46.48			18	140.03	51.50			34	143.66	51.03			50	108.54	45.93
		3	106.49	53.32			19	111.05	51.81			35	137.29	50.82			51	134.10	52.91
		4	110.40	50.00			20	162.40	52.74			36	139.07	52.63			52	116.16	50.79
	II	5	90.06	52.29		II	21	112.77	49.75		II	37	143.77	49.19		II	53	131.79	49.22
		6	90.87	51.82			22	62.66	46.90			38	141.72	50.81			54	103.56	45.59
		7	69.93	68.15			23	129.24	48.94			39	116.01	47.37			55	132.26	50.63
		8	82.38	54.19			24	162.78	53.38			40	142.05	53.45			56	157.89	53.96
	III	9	63.65	48.05		III	25	97.34	52.27		III	41	163.64	53.18		III	57	128.80	49.62
		10	101.06	49.23			26	136.55	54.00			42	125.00	46.54			58	124.14	47.94
		11	93.53	48.77			27	87.83	51.09			43	148.86	55.18			59	142.83	53.60
		12	110.10	47.17			28	157.43	52.43			44	177.75	55.16			60	194.09	56.67
	IV	13	82.67	53.40		IV	29	90.01	48.41		IV	45	152.78	50.65		IV	61	158.46	54.96
		14	43.86	50.70			30	50.02	42.86			46	156.34	52.39			62	116.20	46.53
		15	114.46	56.68			31	132.46	54.40			47	127.00	49.98			63	151.04	53.14
		16	99.14	53.09			32	105.19	46.45			48	142.47	49.35			64	138.72	49.29
	Avg.		87.80	52.04		Avg.		113.02	50.17		Avg.		143.87	51.15		Avg.		134.61	50.81
	Min		43.86	46.48		Min		50.02	42.86		Min		116.01	46.54		Min		103.56	45.59
	Max		114.46	68.15		Max		162.78	54.40		Max		177.75	55.18		Max		194.09	56.67
	SD		19.57	5.12		SD		35.21	3.33		SD		14.81	2.45		SD		22.89	3.31

Table S6. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 3rd fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT
Zone 1 (vascular cambium)	I	1	21.17	4.09	Zone 2 (low amount of wood fiber tips)	I	17	17.59	4.88	Zone 3 (medium amount of wood fiber tips)	I	33	16.53	12.04	Zone 4 (high amount of wood fiber tips)	I	49	12.00	13.89
		2	20.94	4.60			18	17.47	10.07			34	16.28	12.40			50	11.53	15.39
		3	19.95	5.98			19	16.29	8.03			35	14.99	12.99			51	12.48	17.28
		4	19.36	6.41			20	16.21	12.48			36	12.24	15.23			52	8.93	13.97
	II	5	17.51	6.34		II	21	16.69	7.48		II	37	15.58	12.79		II	53	12.08	13.34
		6	18.30	5.63			22	15.05	5.00			38	17.36	11.83			54	9.29	13.38
		7	18.22	3.86			23	16.14	11.69			39	11.79	11.35			55	10.82	15.43
		8	17.87	5.00			24	16.06	12.99			40	14.01	10.78			56	12.67	17.32
	III	9	19.83	2.79		III	25	19.52	5.71		III	41	15.94	13.07		III	57	11.02	13.22
		10	19.68	7.36			26	19.56	9.05			42	14.09	12.12			58	10.63	16.17
		11	19.52	4.64			27	16.92	5.98			43	14.64	13.30			59	10.31	18.42
		12	20.03	6.41			28	17.08	12.75			44	15.27	15.74			60	15.51	17.91
	IV	13	18.73	5.12		IV	29	17.59	6.77		IV	45	15.11	12.71		IV	61	18.46	11.85
		14	18.58	1.97			30	15.31	3.54			46	15.19	14.88			62	12.20	12.40
		15	18.85	6.61			31	18.58	7.60			47	16.61	10.34			63	13.66	15.43
		16	17.47	6.53			32	15.62	8.93			48	13.85	13.70			64	10.39	15.74
Avg.	19.13	5.21	Avg.	16.98	8.31	Avg.	14.97	12.83	Avg.	12.00	15.07								
Min	17.47	1.97	Min	15.05	3.54	Min	11.79	10.34	Min	8.93	11.85								
Max	21.17	7.36	Max	19.56	12.99	Max	17.36	15.74	Max	18.46	18.42								
SD	1.12	1.49	SD	1.36	3.01	SD	1.52	1.51	SD	2.37	2.01								

Table S7. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 4th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Cell					Cell					Cell					Cell				
Z	F	no.	TSA	CWP	Z	F	no.	TSA	CWP	Z	F	no.	TSA	CWP	Z	F	no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	103.59	57.26	I		21	88.43	51.69	I		41	156.10	52.68	I		61	143.82	48.27
		2	77.42	54.63			22	148.73	58.42			42	156.32	56.75			62	182.28	55.09
		3	67.90	50.89			23	169.11	57.87			43	151.27	51.71			63	157.00	53.16
		4	126.88	58.45			24	168.57	60.29			44	191.99	58.43			64	178.81	56.36
	II	5	72.83	48.55	II		25	94.98	51.85	II		45	191.79	57.71	II		65	159.02	52.32
		6	111.95	55.14			26	100.90	51.58			46	194.90	57.94			66	181.68	53.69
		7	90.65	57.99			27	205.32	64.97			47	158.81	52.01			67	130.99	46.97
		8	110.18	55.06			28	207.52	60.90			48	145.73	49.71			68	166.55	53.90
	III	9	84.30	50.86	III		29	98.50	53.05	III		49	166.64	54.85	III		69	159.30	51.67
		10	88.13	51.73			30	80.32	51.56			50	191.81	57.08			70	172.59	53.40
		11	72.92	49.59			31	88.32	47.53			51	196.30	58.29			71	186.50	55.00
		12	91.71	51.33			32	187.40	60.26			52	202.17	58.00			72	189.64	56.58
	IV	13	69.93	43.25	IV		33	80.22	44.34	IV		53	105.76	43.63	IV		73	120.19	45.37
		14	58.57	41.03			34	83.94	45.70			54	131.58	50.10			74	112.01	43.93
		15	82.73	43.51			35	127.66	49.54			55	133.26	47.23			75	116.85	43.97
		16	78.01	44.96			36	112.01	45.79			56	121.42	47.22			76	116.43	46.65
	V	17	84.15	56.61	V		37	68.67	48.97	V		57	193.74	57.36	V		77	155.05	53.63
		18	81.91	55.17			38	85.11	52.46			58	175.69	57.61			78	162.19	53.54
		19	127.19	57.11			39	153.36	58.31			59	156.81	50.67			79	183.75	62.31
		20	96.45	53.40			40	195.92	59.83			60	199.04	58.66			80	212.19	65.22
	Avg.		88.87	51.83	Avg.		127.25	53.75	Avg.		166.06	53.88	Avg.		159.34	52.55			
	Min		58.57	41.03	Min		68.67	44.34	Min		105.76	43.63	Min		112.01	43.93			
	Max		127.19	58.45	Max		207.52	64.97	Max		202.17	58.66	Max		212.19	65.22			
	SD		18.91	5.28	SD		47.46	5.96	SD		28.88	4.60	SD		28.26	5.57			

Table S8. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 4th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Cell					Cell					Cell					Cell				
Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT
Zone 1 (vascular cambium)	I	1	21.13	6.38	I		21	19.76	5.19	I		41	17.47	13.26	I		61	13.47	14.73
		2	21.60	4.60			22	20.07	9.64			42	16.53	11.53			62	15.35	16.22
		3	20.86	4.17			23	20.86	11.73			43	14.99	12.24			63	13.62	16.10
		4	20.11	7.01			24	20.07	11.61			44	17.75	15.43			64	14.68	16.21
	II	5	18.97	5.04	II		25	19.05	5.04	II		45	18.46	13.18	II		65	16.73	13.07
		6	19.83	5.86			26	19.13	7.08			46	17.39	15.39			66	16.55	15.27
		7	19.76	5.63			27	19.87	12.04			47	14.80	14.01			67	11.55	14.17
		8	19.76	6.06			28	19.99	13.14			48	14.76	13.34			68	15.35	13.62
	III	9	19.13	5.55	III		29	20.31	5.67	III		49	16.33	13.89	III		69	11.49	16.37
		10	19.13	5.12			30	19.09	5.19			50	14.76	17.51			70	14.64	16.10
		11	18.85	4.37			31	15.51	6.53			51	14.01	18.97			71	13.44	17.67
		12	18.77	5.19			32	18.73	11.89			52	16.57	16.96			72	15.48	17.04
	IV	13	15.94	5.16	IV		33	15.98	6.38	IV		53	14.21	10.47	IV		73	10.82	14.40
		14	14.88	4.01			34	15.62	6.10			54	15.86	12.51			74	12.04	12.44
		15	14.52	6.34			35	13.93	10.94			55	12.12	14.64			75	13.18	11.57
		16	15.15	5.86			36	13.58	10.07			56	13.38	12.67			76	14.92	14.05
	V	17	20.50	4.41	V		37	17.69	4.25	V		57	18.97	14.01	V		77	14.64	14.05
		18	20.70	4.37			38	19.91	5.67			58	18.85	12.56			78	13.97	15.51
		19	20.19	6.97			39	20.78	8.66			59	17.57	12.18			79	13.77	19.80
		20	19.24	5.71			40	19.80	11.26			60	16.66	17.05			80	14.40	19.99
Avg.		18.95	5.39	Avg.		18.49	8.40	Avg.		16.07	14.09	Avg.		14.00	15.42				
Min		14.52	4.01	Min		13.58	4.25	Min		12.12	10.47	Min		10.82	11.57				
Max		21.60	7.01	Max		20.86	13.14	Max		18.97	18.97	Max		16.73	19.99				
SD		2.12	0.90	SD		2.28	2.96	SD		1.90	2.20	SD		1.62	2.18				

Table S9. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 5th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	84.16	57.64	I		33	140.17	56.48	I		65	166.18	55.54	I		97	135.44	57.48
		2	111.89	54.17			34	183.29	57.57			66	155.58	53.51			98	159.53	52.28
		3	73.71	53.48			35	148.45	54.81			67	129.63	49.65			99	185.69	56.83
		4	52.47	56.81			36	181.41	59.40			68	145.60	57.33			100	154.86	56.12
	II	5	101.46	52.68	II		37	146.80	56.37	II		69	185.00	58.52	II		101	169.59	55.15
		6	84.71	54.38			38	171.81	58.12			70	185.54	58.22			102	169.68	56.48
		7	109.87	53.37			39	206.61	61.00			71	147.15	57.96			103	145.34	51.63
		8	86.19	52.18			40	219.29	63.91			72	174.56	56.21			104	177.34	58.28
	III	9	67.89	52.75	III		41	104.95	53.48	III		73	177.38	55.86	III		105	166.39	54.97
		10	93.33	53.57			42	155.36	54.97			74	165.64	56.06			106	168.40	57.32
		11	90.82	52.91			43	145.62	53.28			75	148.13	56.88			107	168.11	54.86
		12	82.78	54.37			44	182.71	56.98			76	157.66	55.09			108	179.91	56.99
	IV	13	99.69	52.27	IV		45	116.10	55.50	IV		77	160.32	55.94	IV		109	164.47	53.63
		14	111.50	54.40			46	125.45	53.88			78	182.18	56.31			110	148.82	51.27
		15	101.72	55.20			47	93.63	51.67			79	128.08	53.40			111	143.51	52.89
		16	57.86	50.86			48	173.96	55.87			80	132.39	53.12			112	154.66	50.68
	V	17	117.75	56.68	V		49	80.96	52.13	V		81	174.52	57.94	V		113	181.59	55.28
		18	125.07	53.74			50	75.65	51.71			82	147.61	51.86			114	174.15	55.58
		19	141.45	58.08			51	185.47	59.03			83	181.65	55.10			115	161.97	53.03
		20	99.83	56.68			52	171.69	56.47			84	146.07	53.41			116	186.31	58.21
	VI	21	148.00	59.18	VI		53	60.26	51.40	VI		85	147.35	53.22	VI		117	129.80	53.20
		22	101.45	56.18			54	137.63	58.38			86	108.13	45.22			118	121.12	50.22
		23	120.20	55.16			55	168.07	60.47			87	162.45	54.35			119	134.66	50.52
		24	124.01	57.65			56	170.56	58.20			88	148.01	53.08			120	141.28	51.29
	VII	25	94.91	53.75	VII		57	95.37	51.42	VII		89	155.09	55.39	VII		121	147.85	53.94
		26	113.00	53.03			58	63.17	42.93			90	121.37	47.84			122	124.97	47.79
		27	88.30	53.77			59	136.22	55.55			91	151.53	50.91			123	153.95	52.71
		28	40.86	49.26			60	132.28	50.28			92	119.78	48.93			124	152.41	52.06
	VIII	29	63.49	51.88	VIII		61	68.11	49.15	VIII		93	187.26	58.43	VIII		125	137.10	55.00
		30	93.97	50.88			62	78.50	49.42			94	148.42	54.46			126	110.42	55.20
		31	103.11	53.07			63	155.67	57.85			95	135.06	54.98			127	147.78	55.10
		32	110.50	56.06			64	110.04	53.51			96	183.61	58.40			128	127.40	51.71
		Avg.	96.75	54.25			Avg.	137.04	55.04			Avg.	154.97	54.47			Avg.	153.89	53.99
		Min	40.86	49.26			Min	60.26	42.93			Min	108.13	45.22			Min	110.42	47.79
		Max	148.00	59.18			Max	219.29	63.91			Max	187.26	58.52			Max	186.31	58.28
		SD	24.21	2.29			SD	43.78	4.16			SD	21.31	3.25			SD	19.89	2.61

Table S10. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 5th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT
Zone 1 (vascular cambium)	I	1	19.83	3.50	I		33	19.28	8.23	I		65	17.08	12.87	I		97	12.08	9.96
		2	19.80	8.07			34	18.97	12.16			66	16.65	11.29			98	13.81	15.51
		3	19.64	3.35			35	16.84	9.68			67	15.47	9.80			99	15.98	15.31
		4	20.19	1.97			36	18.22	13.30			68	18.10	9.64			100	13.81	12.67
	II	5	19.01	6.45	II		37	19.32	8.87	II		69	15.43	15.03	II		101	14.17	16.49
		6	19.56	4.72			38	19.01	10.67			70	14.17	18.69			102	14.33	16.57
		7	19.17	6.49			39	19.52	14.17			71	16.69	12.71			103	13.58	15.98
		8	19.01	4.88			40	18.65	15.74			72	16.65	15.23			104	19.05	14.05
	III	9	20.50	3.78	III		41	18.89	5.51	III		73	17.79	13.50	III		105	13.03	16.41
		10	20.27	5.04			42	17.28	10.63			74	14.92	14.17			106	14.80	14.72
		11	19.60	4.92			43	18.73	9.80			75	18.81	11.29			107	15.35	14.60
		12	19.44	4.08			44	18.73	12.99			76	16.37	14.52			108	16.25	14.44
	IV	13	19.68	5.56	IV		45	19.72	6.93	IV		77	16.88	11.53	IV		109	16.14	14.09
		14	20.27	5.94			46	20.11	7.24			78	14.29	16.77			110	15.66	14.76
		15	19.91	5.51			47	18.58	6.45			79	12.12	11.06			111	13.34	13.50
		16	19.24	3.35			48	18.50	12.75			80	16.69	12.44			112	13.85	14.60
	V	17	19.91	6.53	V		49	17.75	4.37	V		81	19.05	13.73	V		113	13.38	17.59
		18	19.68	7.95			50	19.68	5.43			82	15.23	14.05			114	13.34	14.99
		19	19.95	8.42			51	20.75	11.31			83	15.86	16.69			115	11.41	17.79
		20	20.03	5.08			52	18.89	11.96			84	14.36	13.07			116	15.86	16.37
	VI	21	21.02	8.30	VI		53	20.15	3.74	VI		85	18.85	10.86	VI		117	15.47	12.16
		22	21.05	5.39			54	20.23	8.62			86	13.58	10.39			118	12.95	14.09
		23	20.70	6.49			55	21.09	9.84			87	15.80	15.31			119	11.02	13.14
		24	20.86	6.34			56	20.98	10.82			88	15.03	13.42			120	14.44	15.13
	VII	25	19.28	4.76	VII		57	19.01	5.47	VII		89	15.82	11.06	VII		121	12.91	14.52
		26	19.32	7.44			58	15.86	4.92			90	14.25	10.39			122	11.41	14.88
		27	20.43	4.57			59	19.64	8.11			91	14.68	14.80			123	14.05	15.70
		28	19.83	2.05			60	16.80	9.72			92	14.41	11.18			124	15.39	14.80
	VIII	29	20.31	3.66	VIII		61	18.81	3.76	VIII		93	17.63	15.84	VIII		125	12.99	13.18
		30	20.15	5.82			62	18.77	5.23			94	15.58	13.03			126	7.87	16.88
		31	19.24	5.63			63	18.89	9.17			95	15.86	11.06			127	14.84	13.73
		32	19.91	5.51			64	17.55	7.75			96	15.07	17.63			128	11.65	17.32
	Avg.		19.90	5.36	Avg.		18.91	8.92	Avg.		15.91	13.22	Avg.		13.88	14.87			
	Min		19.01	1.97	Min		15.86	3.74	Min		12.12	9.64	Min		7.87	9.96			
	Max		21.05	8.42	Max		21.09	15.74	Max		19.05	18.69	Max		19.05	17.79			
	SD		0.56	1.67	SD		1.20	3.20	SD		1.62	2.37	SD		2.03	1.67			

Table S11. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 6th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	69.49	58.34	I		21	141.33	56.92	I		41	127.77	53.67	I		61	168.70	59.56
		2	53.87	50.28			22	145.53	56.53			42	154.43	56.21			62	168.04	59.88
		3	132.24	58.07			23	138.81	51.88			43	138.18	53.88			63	164.08	60.07
		4	104.49	57.60			24	128.66	54.51			44	107.16	47.10			64	195.65	64.95
	II	5	40.33	48.87	II		25	165.63	57.30	II		45	111.48	51.05	II		65	129.87	49.45
		6	129.47	56.00			26	172.78	58.42			46	145.55	51.97			66	139.51	48.73
		7	128.51	56.42			27	187.67	57.17			47	118.24	51.62			67	161.11	55.17
		8	70.12	55.61			28	135.24	51.82			48	178.61	57.40			68	151.50	52.81
	III	9	106.87	52.56	III		29	118.29	51.72	III		49	157.25	54.00	III		69	125.05	50.07
		10	129.85	55.07			30	135.94	55.78			50	138.26	53.05			70	144.80	52.78
		11	49.39	50.25			31	137.18	51.03			51	151.85	56.18			71	169.86	56.94
		12	97.04	49.62			32	157.90	56.13			52	127.50	51.03			72	180.78	58.36
	IV	13	137.68	55.45	IV		33	107.54	51.80	IV		53	170.60	57.64	IV		73	141.10	53.55
		14	103.56	55.29			34	151.04	55.31			54	141.80	55.42			74	126.51	49.20
		15	118.92	55.31			35	179.05	57.72			55	166.07	54.81			75	177.06	56.51
		16	95.36	56.18			36	166.54	56.76			56	166.58	54.29			76	159.27	54.99
	V	17	99.46	51.80	V		37	56.33	47.58	V		57	132.07	51.21	V		77	139.44	50.80
		18	87.42	56.45			38	158.82	53.86			58	117.02	49.12			78	136.60	51.44
		19	95.19	57.05			39	143.27	51.45			59	140.41	52.59			79	130.41	47.29
		20	62.30	49.57			40	137.96	50.60			60	139.48	50.61			80	157.30	53.19
	Avg.		95.58	54.29	Avg.		143.28	54.21	Avg.		141.52	53.14	Avg.		153.33	54.29			
	Min		40.33	48.87	Min		56.33	47.58	Min		107.16	47.10	Min		125.05	47.29			
	Max		137.68	58.34	Max		187.67	58.42	Max		178.61	57.64	Max		195.65	64.95			
	SD		29.72	3.13	SD		28.62	3.02	SD		20.15	2.75	SD		19.93	4.64			

Table S12. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 6th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Cell					Cell					Cell					Cell				
Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT
Zone 1 (vascular cambium)	I	1	19.44	3.03	I		21	17.79	8.50	I		41	17.20	11.29	I		61	12.83	16.29
		2	19.21	3.82			22	19.44	8.62			42	15.07	15.11			62	15.15	14.29
		3	18.61	8.15			23	17.00	10.86			43	14.56	12.36			63	14.13	13.77
		4	19.52	5.63			24	16.73	9.60			44	9.41	14.21			64	16.88	14.56
	II	5	19.21	2.40	II		25	19.32	11.41	II		45	16.10	9.25	II		65	13.14	14.25
		6	19.28	8.03			26	18.34	11.77			46	12.91	15.35			66	15.70	12.08
		7	18.58	7.83			27	16.77	14.72			47	10.15	14.84			67	13.14	16.53
		8	18.30	2.60			28	16.73	12.42			48	16.65	15.58			68	13.66	16.37
	III	9	18.18	6.57	III		29	18.73	8.62	III		49	16.69	13.03	III		69	13.66	11.73
		10	19.01	7.95			30	19.44	8.11			50	16.57	11.41			70	13.18	15.15
		11	18.58	2.44			31	14.33	12.91			51	14.64	13.46			71	15.82	16.61
		12	18.54	6.57			32	18.26	13.42			52	12.63	13.50			72	15.51	15.07
	IV	13	20.11	8.07	IV		33	18.93	8.19	IV		53	16.73	14.40	IV		73	16.61	11.53
		14	18.97	6.41			34	19.52	10.55			54	18.89	9.92			74	16.21	10.00
		15	19.72	6.57			35	17.47	13.62			55	16.25	14.88			75	14.09	17.55
		16	19.87	4.45			36	20.11	12.00			56	14.64	14.84			76	13.22	17.71
	V	17	20.31	6.10	V		37	17.43	1.69	V		57	16.84	10.67	V		77	15.66	12.75
		18	20.66	3.97			38	17.75	11.57			58	14.99	10.43			78	14.72	14.68
		19	20.17	5.63			39	16.69	12.44			59	12.00	14.01			79	13.85	12.28
		20	19.76	4.21			40	15.90	12.32			60	14.17	12.32			80	14.33	14.33
Avg.		19.30	5.52	Avg.		17.83	10.67	Avg.		14.85	13.04	Avg.		14.57	14.38				
Min		18.18	2.40	Min		14.33	1.69	Min		9.41	9.25	Min		12.83	10.00				
Max		20.66	8.15	Max		20.11	14.72	Max		18.89	15.58	Max		16.88	17.71				
SD		0.71	2.02	SD		1.45	2.89	SD		2.42	1.97	SD		1.28	2.14				

Table S13. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 7th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	89.93	60.95	Zone 2 (low amount of wood fiber tips)	I	17	140.06	69.55	Zone 3 (medium amount of wood fiber tips)	I	33	141.07	53.21	Zone 4 (high amount of wood fiber tips)	I	49	140.38	50.38
		2	154.66	63.99			18	165.18	57.89			34	179.87	58.07			50	133.47	49.92
		3	164.72	63.94			19	187.35	72.98			35	175.25	53.43			51	173.75	56.47
		4	184.47	66.38			20	160.45	71.37			36	129.39	50.18			52	175.66	54.35
	II	5	145.60	60.63		II	21	129.99	58.87		II	37	226.61	61.89		II	53	186.54	57.10
		6	139.08	58.77			22	223.96	64.24			38	192.45	57.94			54	189.07	56.15
		7	137.72	59.30			23	167.13	58.53			39	191.31	55.90			55	207.93	57.73
		8	152.63	62.55			24	198.74	59.51			40	167.30	54.09			56	185.38	59.57
	III	9	124.23	60.78		III	25	175.82	79.07		III	41	172.79	53.84		III	57	217.37	59.40
		10	140.69	62.90			26	128.59	54.58			42	170.29	55.87			58	215.56	61.18
		11	117.47	59.36			27	212.38	60.42			43	176.29	54.87			59	206.87	62.64
		12	54.50	55.77			28	205.81	58.14			44	207.12	59.16			60	206.38	62.02
	IV	13	115.16	61.45		IV	29	170.85	60.17		IV	45	173.34	55.39		IV	61	201.05	60.06
		14	121.30	57.24			30	137.89	56.04			46	220.48	61.14			62	206.84	60.53
		15	130.09	58.05			31	135.54	64.13			47	220.64	62.38			63	211.14	62.79
		16	68.22	53.71			32	185.94	57.82			48	153.82	53.70			64	184.49	60.41
	Avg.		127.53	60.36		Avg.		170.36	62.71		Avg.		181.13	56.32		Avg.		190.12	58.17
	Min		54.50	53.71		Min		128.59	54.58		Min		129.39	50.18		Min		133.47	49.92
	Max		184.47	66.38		Max		223.96	79.07		Max		226.61	62.38		Max		217.37	62.79
	SD		33.96	3.27		SD		30.50	6.99		SD		27.82	3.48		SD		24.93	3.95

Table S14. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 7th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Cell					Cell					Cell					Cell				
Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT	Z	F	no.	CW	CT
Zone 1 (vascular cambium)	I	1	21.76	2.95	Zone 2 (low amount of wood fiber tips)	I	17	21.02	7.56	Zone 3 (medium amount of wood fiber tips)	I	33	17.59	10.19	Zone 4 (high amount of wood fiber tips)	I	49	14.29	11.57
		2	21.96	8.97			18	18.89	9.96			34	17.91	12.79			50	11.14	16.65
		3	20.83	7.97			19	18.22	12.75			35	15.11	14.60			51	13.97	16.17
		4	20.94	9.21			20	18.02	9.96			36	15.23	10.90			52	16.92	14.48
	II	5	20.70	7.87		II	21	20.46	6.30		II	37	18.52	15.06		II	53	18.42	14.29
		6	20.23	7.87			22	22.99	13.27			38	18.30	14.21			54	14.60	17.00
		7	20.86	6.89			23	19.21	9.80			39	16.14	15.35			55	17.32	16.45
		8	21.25	7.16			24	19.40	11.89			40	16.14	12.79			56	14.99	16.02
	III	9	21.45	7.04		III	25	19.40	10.19		III	41	16.65	13.85		III	57	19.09	15.98
		10	21.19	6.89			26	21.21	7.83			42	17.04	12.20			58	18.44	16.02
		11	20.98	5.63			27	19.91	13.34			43	15.27	14.29			59	16.25	17.32
		12	20.82	3.11			28	17.16	14.88			44	18.42	14.17			60	15.15	17.08
	IV	13	21.09	5.82		IV	29	19.52	9.52		IV	45	17.00	13.26		IV	61	17.79	15.11
		14	20.62	7.32			30	17.55	8.26			46	19.64	15.03			62	16.77	16.57
		15	20.94	7.32			31	17.32	9.19			47	17.47	16.29			63	18.22	15.62
		16	20.35	3.66			32	18.06	12.75			48	16.45	12.04			64	17.51	13.34
Avg.		21.00	6.61	Avg.		19.27	10.47	Avg.		17.06	13.56	Avg.		16.30	15.60				
Min		20.23	2.95	Min		17.16	6.30	Min		15.11	10.19	Min		11.14	11.57				
Max		21.96	9.21	Max		22.99	14.18	Max		19.64	16.29	Max		19.09	17.32				
SD		0.46	1.91	SD		1.59	2.44	SD		1.31	1.66	SD		2.13	1.53				

Table S15. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 8th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	103.66	52.71	I		33	165.54	53.79	I		65	209.82	57.50	I		97	145.05	51.33
		2	69.32	49.08			34	164.91	53.89			66	175.47	54.17			98	166.49	50.83
		3	76.81	47.13			35	147.38	52.88			67	147.81	51.38			99	157.86	51.24
		4	67.48	48.57			36	131.11	50.02			68	128.03	45.81			100	188.89	56.36
	II	5	109.49	58.84	II		37	154.43	61.43	II		69	263.65	63.32	II		101	215.10	58.24
		6	103.38	58.29			38	221.36	62.29			70	205.60	59.29			102	176.23	53.44
		7	109.84	56.76			39	218.11	60.86			71	217.74	60.00			103	225.65	59.39
		8	90.86	52.59			40	252.63	62.53			72	186.43	57.87			104	238.24	62.31
	III	9	84.05	52.96	III		41	122.99	53.06	III		73	196.28	54.89	III		105	172.23	52.44
		10	87.94	52.65			42	140.24	53.48			74	177.15	54.63			106	170.57	52.61
		11	102.62	50.86			43	135.26	52.95			75	164.01	53.85			107	183.95	52.85
		12	94.35	53.15			44	179.89	55.08			76	157.36	52.21			108	171.23	51.22
	IV	13	32.26	48.59	IV		45	86.32	47.34	IV		77	174.18	52.29	IV		109	136.72	47.64
		14	83.49	47.21			46	104.61	52.51			78	175.63	52.42			110	142.91	50.00
		15	81.07	50.28			47	86.70	47.16			79	146.20	50.46			111	146.77	49.70
		16	131.24	52.49			48	166.40	51.15			80	117.32	46.37			112	191.88	55.07
	V	17	115.60	48.17	V		49	84.77	45.10	V		81	151.52	48.34	V		113	131.96	47.30
		18	86.47	46.55			50	74.34	42.50			82	136.92	47.51			114	139.47	46.44
		19	115.95	50.47			51	150.53	52.45			83	151.38	50.25			115	155.52	49.09
		20	100.76	48.39			52	147.30	50.27			84	119.75	48.06			116	181.63	53.76
	VI	21	55.84	47.20	VI		53	91.87	46.67	VI		85	177.04	51.69	VI		117	112.77	44.89
		22	68.90	43.94			54	50.15	42.41			86	158.57	49.96			118	145.94	48.07
		23	59.50	43.71			55	144.50	48.90			87	128.40	46.54			119	137.16	47.41
		24	121.82	49.55			56	181.39	52.99			88	173.30	51.12			120	168.88	53.50
	VII	25	97.89	52.80	VII		57	154.86	52.81	VII		89	134.66	47.07	VII		121	127.60	48.03
		26	112.86	54.03			58	149.96	49.64			90	143.79	48.57			122	158.19	51.76
		27	111.07	51.54			59	128.04	48.03			91	141.29	49.45			123	151.45	48.49
		28	39.36	49.87			60	138.30	48.85			92	140.54	47.42			124	152.27	49.68
	VIII	29	67.44	40.61	VIII		61	102.19	44.72	VIII		93	122.51	49.76	VIII		125	89.69	46.08
		30	87.33	43.27			62	117.71	45.16			94	109.35	45.30			126	103.87	48.16
		31	86.39	44.08			63	106.03	44.25			95	133.91	47.38			127	86.19	41.58
		32	54.99	42.40			64	153.75	49.90			96	133.45	48.56			128	142.97	49.79
	Avg.		87.81	49.65	Avg.		139.17	51.10	Avg.		159.35	51.36	Avg.		156.73	50.90			
	Min		32.26	40.61	Min		50.15	42.41	Min		109.35	45.30	Min		86.19	41.58			
	Max		131.24	58.84	Max		252.63	62.53	Max		263.65	63.32	Max		238.24	62.31			
	SD		23.98	4.44	SD		43.98	5.38	SD		33.88	4.50	SD		34.65	4.31			

Table S16. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 8th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT
Zone 1 (vascular cambium)	I	1	19.83	5.71	I		33	18.46	10.39	I		65	18.81	13.50	I		97	15.74	13.26
		2	19.05	3.74			34	19.21	10.35			66	16.65	11.96			98	15.15	13.42
		3	18.93	5.51			35	18.42	8.23			67	15.78	10.67			99	12.24	14.88
		4	18.89	4.03			36	17.95	8.62			68	14.99	11.10			100	13.50	17.59
	II	5	23.30	5.47	II		37	21.68	7.04	II		69	19.52	17.20	II		101	16.10	19.01
		6	22.98	5.59			38	23.10	11.41			70	15.82	19.40			102	15.70	14.01
		7	22.43	5.90			39	22.16	11.61			71	12.48	21.17			103	16.84	17.00
		8	20.78	4.76			40	22.12	16.06			72	14.99	18.77			104	16.73	18.42
	III	9	21.33	5.16	III		41	19.80	7.63	III		73	17.47	15.39	III		105	14.13	15.23
		10	21.05	4.41			42	19.17	8.58			74	15.94	15.64			106	12.40	16.65
		11	20.31	6.57			43	19.91	8.23			75	15.23	14.17			107	14.88	16.14
		12	21.17	5.19			44	18.50	12.40			76	14.52	16.77			108	15.74	14.52
	IV	13	19.28	2.13	IV		45	17.12	5.27	IV		77	15.62	14.64	IV		109	14.99	14.44
		14	19.44	5.59			46	20.39	5.90			78	16.02	14.76			110	15.39	13.26
		15	19.99	4.33			47	16.49	7.16			79	17.47	11.65			111	12.83	14.25
		16	20.05	8.46			48	18.34	11.72			80	16.84	10.78			112	14.99	16.17
	V	17	18.06	8.03	V		49	17.51	5.39	V		81	14.44	14.95	V		113	16.96	9.80
		18	17.39	5.59			50	14.36	6.38			82	14.40	13.77			114	15.19	12.40
		19	18.77	6.57			51	18.69	10.07			83	16.77	14.17			115	14.84	14.13
		20	18.06	6.10			52	18.06	11.33			84	11.96	10.43			116	17.91	14.33
	VI	21	17.70	3.12	VI		53	17.93	6.18	VI		85	15.23	16.41	VI		117	12.83	12.91
		22	17.95	4.60			54	16.16	2.99			86	14.13	15.82			118	14.21	13.81
		23	17.87	4.13			55	16.12	10.59			87	12.40	13.38			119	13.62	14.25
		24	17.28	8.11			56	16.52	14.29			88	15.62	15.35			120	17.63	13.18
	VII	25	20.50	6.26	VII		57	18.94	9.56	VII		89	15.43	11.18	VII		121	15.35	14.09
		26	20.54	5.51			58	16.61	10.71			90	16.06	13.42			122	14.13	13.73
		27	20.78	7.44			59	17.78	9.56			91	13.46	13.11			123	13.85	15.15
		28	20.43	2.13			60	17.83	9.69			92	14.88	14.05			124	13.26	15.15
	VIII	29	15.86	5.16	VIII		61	16.14	7.75	VIII		93	13.54	10.55	VIII		125	5.75	14.84
		30	15.98	6.65			62	16.41	9.80			94	10.51	12.08			126	6.10	17.87
		31	16.08	6.02			63	14.56	8.74			95	12.75	15.19			127	6.77	15.90
		32	16.25	3.62			64	16.41	12.24			96	12.79	12.32			128	11.41	15.11
	Avg.		19.32	5.36	Avg.		18.21	9.25	Avg.		15.08	14.18	Avg.		13.97	14.84			
	Min		15.89	2.13	Min		14.36	2.99	Min		10.51	10.43	Min		5.75	9.80			
	Max		23.30	8.46	Max		23.10	16.06	Max		19.52	21.17	Max		17.91	19.01			
	SD		1.98	1.54	SD		2.11	2.75	SD		1.97	2.66	SD		2.98	1.88			

Table S17. Measurements of cell transverse surface area (TSA [μm^2]), and cell wall perimeter (CWP [μm]) in the 9th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP	Z	F	Cell no.	TSA	CWP
Zone 1 (vascular cambium)	I	1	88.25	60.59	I		21	129.36	56.30	I		41	146.44	54.87	I		61	174.10	53.40
		2	110.75	59.43			22	216.53	59.04			42	200.52	60.00			62	217.53	58.10
		3	147.13	61.07			23	193.65	58.50			43	182.15	58.60			63	188.54	56.57
		4	94.77	58.20			24	193.22	59.33			44	226.36	58.59			64	239.54	61.69
	II	5	115.85	56.71	II		25	235.91	61.01	II		45	109.38	45.67	II		65	135.07	48.82
		6	79.53	57.37			26	170.18	55.26			46	205.59	56.86			66	202.24	57.80
		7	109.67	57.95			27	114.19	50.83			47	183.74	53.17			67	170.36	57.77
		8	148.70	61.25			28	166.52	53.07			48	166.70	52.05			68	186.30	59.30
	III	9	116.71	61.20	III		29	135.22	55.28	III		49	210.07	58.25	III		69	207.91	58.43
		10	131.69	61.66			30	213.53	64.58			50	206.62	58.06			70	208.57	58.23
		11	183.62	66.87			31	219.12	61.00			51	229.53	59.49			71	206.73	58.31
		12	112.50	62.36			32	216.89	59.06			52	199.37	59.03			72	208.16	58.03
	IV	13	110.55	64.19	IV		33	106.40	54.46	IV		53	211.88	60.53	IV		73	195.89	54.96
		14	145.22	59.82			34	211.36	61.62			54	221.15	59.02			74	184.10	54.90
		15	134.06	62.58			35	208.73	61.01			55	242.63	60.80			75	176.04	55.66
		16	137.84	62.10			36	197.86	57.70			56	189.54	56.30			76	199.64	55.06
	V	17	86.62	51.01	V		37	111.85	48.89	V		57	113.58	48.05	V		77	150.85	48.32
		18	121.74	52.66			38	157.95	51.01			58	167.41	50.62			78	162.63	50.50
		19	132.88	56.24			39	148.90	49.69			59	148.69	49.10			79	158.34	50.06
		20	133.26	54.30			40	148.91	49.47			60	184.55	53.21			80	172.17	51.17
	Avg.		122.07	59.38	Avg.		174.81	56.36	Avg.		187.30	55.61	Avg.		187.24	55.35			
	Min		79.53	51.01	Min		106.40	48.89	Min		109.38	45.67	Min		135.07	48.32			
	Max		183.62	66.87	Max		235.91	64.58	Max		242.63	60.80	Max		239.54	61.69			
	SD		25.04	3.89	SD		41.09	4.66	SD		36.42	4.53	SD		25.25	3.81			

Table S18. Measurements of cell width (CW [μm]), and cell thickness (CT [μm]) in the 9th fragment of *Robinia pseudoacacia* L. tissues, i.e., vascular cambium, and derivatives deposited on the xylem side. Z – zone. F – file. Average (Avg.), minimal (Min), and maximal (Max) values, as well as standard deviation (SD) are shown for each zone

Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT	Z	F	Cell no.	CW	CT
Zone 1 (vascular cambium)	I	1	23.97	3.11	Zone 2 (low amount of wood fiber tips)	I	21	20.27	6.26	Zone 3 (medium amount of wood fiber tips)	I	41	20.82	10.55	Zone 4 (high amount of wood fiber tips)	I	61	14.89	16.21
		2	23.61	4.96			22	21.37	13.07			42	21.21	12.91			62	17.00	17.67
		3	23.61	7.44			23	22.55	12.08			43	21.92	13.11			63	15.27	17.00
		4	23.77	4.84			24	22.51	11.33			44	17.08	16.37			64	17.75	16.77
	II	5	22.98	4.92		II	25	20.50	13.77		II	45	15.86	9.56		II	65	13.73	13.14
		6	23.06	5.00			26	18.54	11.06			46	15.58	17.43			66	14.52	17.67
		7	23.02	4.30			27	19.68	7.28			47	16.06	16.69			67	17.47	17.63
		8	23.81	6.45			28	17.83	10.43			48	12.16	16.57			68	14.99	16.57
	III	9	24.09	5.23		III	29	21.45	8.74		III	49	19.32	14.84		III	69	15.47	15.58
		10	24.64	5.59			30	23.14	10.43			50	16.21	15.70			70	16.92	14.84
		11	25.30	7.40			31	20.31	12.95			51	16.96	18.77			71	16.17	17.39
		12	25.11	5.67			32	18.97	13.42			52	16.02	15.39			72	14.95	16.14
	IV	13	24.91	4.09		IV	33	22.39	5.16		IV	53	19.13	13.42		IV	73	16.21	17.12
		14	24.28	7.52			34	21.92	11.29			54	17.59	16.80			74	14.72	15.31
		15	24.56	5.90			35	20.31	11.06			55	19.73	15.90			75	16.29	15.98
		16	24.56	6.26			36	18.73	12.40			56	16.69	12.08			76	16.88	16.06
	V	17	20.19	4.72		V	37	18.10	6.53		V	57	14.40	9.17		V	77	16.49	12.20
		18	20.62	7.20			38	16.10	11.57			58	16.14	13.70			78	14.56	16.21
		19	20.07	6.57			39	18.65	11.26			59	16.69	12.48			79	16.67	11.61
		20	19.56	7.01			40	15.78	12.00			60	17.67	14.17			80	16.65	14.05
	Avg.		23.29	5.71		Avg.		19.96	10.60		Avg.		17.36	14.28		Avg.		15.88	15.76
	Min		19.56	3.11		Min		15.78	5.16		Min		12.16	9.17		Min		13.73	11.61
	Max		25.30	7.52		Max		23.14	13.77		Max		21.92	18.77		Max		17.75	17.67
	SD		1.76	1.25		SD		2.11	2.51		SD		2.39	2.64		SD		1.13	1.78

Table S19. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 1st fragment (Table S1, and Table S2). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at p <0.05 (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.908	0.942	0.920	0.944	<i>W</i>	0.914	0.973	0.969	0.965
<i>p</i>	0.060	0.259	0.100	0.279	<i>p</i>	0.075	0.808	0.740	0.648
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.853	0.956	0.956	0.907	<i>W</i>	0.946	0.972	0.949	0.936
<i>p</i>	0.006	0.461	0.462	0.056	<i>p</i>	0.312	0.805	0.351	0.197

Table S20. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 2nd fragment (Table S3, and Table S4). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at p <0.05 (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
W	0.979	0.975	0.983	0.935	W	0.962	0.980	0.951	0.862
p	0.784	0.637	0.883	0.054	p	0.307	0.787	0.151	0.001
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
W	0.916	0.968	0.986	0.895	W	0.965	0.978	0.944	0.937
p	0.016	0.446	0.934	0.005	p	0.373	0.725	0.096	0.063

Table S21. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 3rd fragment (Table S5, and Table S6). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at $p < 0.05$ (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.956	0.960	0.958	0.927	<i>W</i>	0.794	0.934	0.966	0.968
<i>p</i>	0.598	0.654	0.620	0.219	<i>p</i>	0.002	0.284	0.763	0.797
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.962	0.937	0.954	0.885	<i>W</i>	0.940	0.945	0.964	0.955
<i>p</i>	0.696	0.309	0.563	0.046	<i>p</i>	0.351	0.416	0.743	0.575

Table S22. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 4th fragment (Table S7, and Table S8). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at $p < 0.05$ (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.941	0.878	0.917	0.943	<i>W</i>	0.917	0.944	0.873	0.935
<i>p</i>	0.248	0.016	0.088	0.272	<i>p</i>	0.087	0.289	0.013	0.190
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.839	0.823	0.967	0.962	<i>W</i>	0.957	0.890	0.949	0.962
<i>p</i>	0.004	0.002	0.698	0.586	<i>p</i>	0.484	0.027	0.353	0.580

Table S23. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 5th fragment (Table S9, and Table S10). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at $p < 0.05$ (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.984	0.960	0.958	0.978	<i>W</i>	0.979	0.976	0.916	0.973
<i>p</i>	0.894	0.273	0.246	0.730	<i>p</i>	0.760	0.668	0.017	0.571
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.967	0.963	0.977	0.959	<i>W</i>	0.974	0.974	0.959	0.967
<i>p</i>	0.414	0.333	0.715	0.256	<i>p</i>	0.605	0.619	0.255	0.409

Table S24. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 6th fragment (Table S11, and Table S12). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at $p < 0.05$ (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.941	0.903	0.975	0.958	<i>W</i>	0.879	0.922	0.979	0.962
<i>p</i>	0.245	0.046	0.860	0.502	<i>p</i>	0.017	0.108	0.923	0.582

CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.967	0.958	0.931	0.928	<i>W</i>	0.910	0.873	0.925	0.965
<i>p</i>	0.701	0.498	0.165	0.144	<i>p</i>	0.064	0.013	0.125	0.645

Table S25. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 7th fragment (Table S13, and Table S14). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at $p < 0.05$ (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.948	0.947	0.956	0.862	<i>W</i>	0.991	0.866	0.943	0.898
<i>p</i>	0.464	0.439	0.582	0.021	<i>p</i>	0.999	0.024	0.393	0.075
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.964	0.948	0.966	0.929	<i>W</i>	0.887	0.960	0.968	0.873
<i>p</i>	0.730	0.456	0.770	0.235	<i>p</i>	0.050	0.670	0.812	0.030

Table S26. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 8th fragment (Table S15, and Table S16). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at $p < 0.05$ (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.975	0.971	0.932	0.975	<i>W</i>	0.977	0.938	0.927	0.970
<i>p</i>	0.648	0.527	0.044	0.650	<i>p</i>	0.723	0.066	0.032	0.492
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
<i>W</i>	0.974	0.959	0.986	0.832	<i>W</i>	0.975	0.991	0.953	0.962
<i>p</i>	0.603	0.259	0.939	0.000	<i>p</i>	0.656	0.992	0.176	0.303

Table S27. Shapiro-Wilk Test performed to check the data for normality. The data analyzed concern the 9th fragment (Table S17, and Table S18). Number 0.000 means that p value was <0.000001 in case of Shapiro-Wilk Test. The results are significant at p <0.05 (bolded). TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

TSA					CWP				
Zone	1	2	3	4	Zone	1	2	3	4
W	0.964	0.924	0.942	0.985	W	0.971	0.945	0.895	0.920
p	0.624	0.117	0.260	0.982	p	0.786	0.294	0.034	0.101
CW					CT				
Zone	1	2	3	4	Zone	1	2	3	4
W	0.837	0.957	0.954	0.954	W	0.957	0.885	0.964	0.877
p	0.003	0.488	0.435	0.435	p	0.482	0.022	0.628	0.016

Table S28. Measurement results for the nine analyzed tissue fragments of *Robinia pseudoacacia* L. The average value $\pm$ standard deviation (minimum–maximum value obtained) is shown for each of the designated zones, i.e.: zone 1 (vascular cambium with no fiber tips); zone 2 (low amount of wood fiber tips); zone 3 (medium amount of wood fiber tips); zone 4 (high amount of wood fiber tips). TSA – transverse surface area of a cell. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Zone	TSA [μm^2]	CWP [μm]	CW [μm]	CT [μm]	TSA [μm^2]	CWP [μm]	CW [μm]	CT [μm]	TSA [μm^2]	CWP [μm]	CW [μm]	CT [μm]
1st analyzed tissue fragment					2nd analyzed tissue fragment					3rd analyzed tissue fragment		
1	93.56 $\pm$ 24.06 (60.26–147.29)	50.78 $\pm$ 6.09 (41.88–59.46)	18.80 $\pm$ 2.51 (15.23–22.18)	5.24 $\pm$ 1.40 (3.28–7.82)	81.43 $\pm$ 21.15 (40.69–124.21)	47.16 $\pm$ 3.01 (41.49–52.29)	19.19 $\pm$ 1.12 (17.23–20.70)	5.39 $\pm$ 1.50 (2.90–8.27)	87.80 $\pm$ 19.57 (43.86–114.46)	52.04 $\pm$ 5.12 (46.48–68.15)	19.13 $\pm$ 1.12 (17.47–21.17)	5.21 $\pm$ 1.49 (1.97–7.36)
2	122.24 $\pm$ 27.51 (85.95–184.59)	52.32 $\pm$ 5.58 (42.83–62.18)	18.04 $\pm$ 2.67 (13.60–22.82)	7.61 $\pm$ 2.23 (3.12–12.14)	108.02 $\pm$ 33.44 (52.00–198.77)	47.49 $\pm$ 3.89 (39.90–55.49)	18.15 $\pm$ 1.58 (14.99–20.88)	8.05 $\pm$ 2.63 (3.53–14.29)	113.02 $\pm$ 35.21 (50.02–162.78)	50.17 $\pm$ 3.33 (42.86–54.40)	16.98 $\pm$ 1.36 (15.05–19.56)	8.31 $\pm$ 3.01 (3.54–12.99)
3	173.21 $\pm$ 28.63 (117.92–211.98)	55.36 $\pm$ 5.07 (45.24–63.70)	16.87 $\pm$ 1.86 (14.25–20.64)	12.69 $\pm$ 2.75 (8.57–18.21)	137.73 $\pm$ 27.98 (76.09–198.95)	48.30 $\pm$ 4.48 (36.11–58.05)	15.61 $\pm$ 1.93 (11.59–19.79)	12.72 $\pm$ 2.43 (9.31–20.06)	143.87 $\pm$ 14.81 (116.01–177.75)	51.15 $\pm$ 2.45 (46.54–55.18)	14.97 $\pm$ 1.52 (11.79–17.36)	12.83 $\pm$ 1.51 (10.34–15.74)
4	153.46 $\pm$ 27.30 (102.13–191.58)	52.43 $\pm$ 3.51 (46.62–58.47)	13.46 $\pm$ 2.15 (7.92–16.49)	14.09 $\pm$ 2.11 (8.51–17.27)	130.01 $\pm$ 26.26 (65.75–171.29)	47.83 $\pm$ 4.35 (36.74–53.35)	14.26 $\pm$ 2.14 (8.90–17.30)	13.88 $\pm$ 2.48 (8.65–17.91)	134.61 $\pm$ 22.89 (103.56–194.09)	50.81 $\pm$ 3.31 (45.59–56.67)	12.00 $\pm$ 2.37 (8.93–18.46)	15.07 $\pm$ 2.01 (11.85–18.42)
4th analyzed tissue fragment					5th analyzed tissue fragment					6th analyzed tissue fragment		
1	88.87 $\pm$ 18.91 (58.57–127.19)	51.83 $\pm$ 5.28 (41.03–58.45)	18.95 $\pm$ 2.12 (14.52–21.60)	5.39 $\pm$ 0.90 (4.01–7.01)	96.75 $\pm$ 24.21 (40.86–148.00)	54.25 $\pm$ 2.29 (49.26–59.18)	19.90 $\pm$ 0.56 (19.01–21.05)	5.36 $\pm$ 1.67 (1.97–8.42)	95.58 $\pm$ 29.72 (40.33–137.68)	54.29 $\pm$ 3.13 (48.87–58.34)	19.30 $\pm$ 0.71 (18.18–20.66)	5.52 $\pm$ 2.02 (2.40–8.15)
2	127.25 $\pm$ 47.46 (68.67–207.52)	53.75 $\pm$ 5.96 (44.34–64.97)	18.49 $\pm$ 2.28 (13.58–20.86)	8.40 $\pm$ 2.96 (4.25–13.14)	137.04 $\pm$ 43.78 (60.26–219.29)	55.04 $\pm$ 4.16 (42.93–63.91)	18.91 $\pm$ 1.20 (15.86–21.09)	8.92 $\pm$ 3.20 (3.74–15.74)	143.28 $\pm$ 28.62 (56.33–187.67)	54.21 $\pm$ 3.02 (47.58–58.42)	17.83 $\pm$ 1.45 (14.33–20.11)	10.67 $\pm$ 2.89 (1.69–14.72)
3	166.06 $\pm$ 28.88 (105.76–202.17)	53.88 $\pm$ 4.60 (43.63–58.66)	16.07 $\pm$ 1.90 (12.12–18.97)	14.09 $\pm$ 2.20 (10.47–18.97)	154.97 $\pm$ 21.31 (108.13–187.26)	54.47 $\pm$ 3.25 (45.22–58.52)	15.91 $\pm$ 1.62 (12.12–19.05)	13.22 $\pm$ 2.37 (9.64–18.69)	141.52 $\pm$ 20.15 (107.16–178.61)	53.14 $\pm$ 2.75 (47.10–57.64)	14.85 $\pm$ 2.42 (9.41–18.89)	13.04 $\pm$ 1.97 (9.25–15.58)
4	159.34 $\pm$ 28.26 (112.01–212.19)	52.55 $\pm$ 5.57 (43.93–65.22)	14.00 $\pm$ 1.62 (10.82–16.73)	15.42 $\pm$ 2.18 (11.57–19.99)	153.89 $\pm$ 19.89 (110.42–186.31)	53.99 $\pm$ 2.61 (47.79–58.28)	13.88 $\pm$ 2.03 (7.87–19.05)	14.87 $\pm$ 1.67 (9.96–17.79)	153.33 $\pm$ 19.93 (125.05–195.65)	54.29 $\pm$ 4.64 (47.29–64.95)	14.57 $\pm$ 1.28 (12.83–16.88)	14.38 $\pm$ 2.14 (10.00–17.71)
7th analyzed tissue fragment					8th analyzed tissue fragment					9th analyzed tissue fragment		
1	127.53 $\pm$ 33.96 (54.50–184.47)	60.36 $\pm$ 3.27 (53.71–66.38)	21.00 $\pm$ 0.46 (20.23–21.96)	6.61 $\pm$ 1.91 (2.95–9.21)	87.81 $\pm$ 23.98 (32.26–131.24)	49.65 $\pm$ 4.44 (40.61–58.84)	19.32 $\pm$ 1.98 (15.89–23.30)	5.36 $\pm$ 1.54 (2.13–8.46)	122.07 $\pm$ 25.04 (79.53–183.62)	59.38 $\pm$ 3.89 (51.01–66.87)	23.29 $\pm$ 1.76 (19.56–25.30)	5.71 $\pm$ 1.25 (3.11–7.52)
2	170.36 $\pm$ 30.50 (128.59–223.96)	62.71 $\pm$ 6.99 (54.58–79.07)	19.27 $\pm$ 1.59 (17.16–22.99)	10.47 $\pm$ 2.44 (6.30–14.18)	139.17 $\pm$ 43.98 (50.15–252.63)	51.10 $\pm$ 5.38 (42.41–62.53)	18.21 $\pm$ 2.11 (14.36–23.10)	9.25 $\pm$ 2.75 (2.99–16.06)	174.81 $\pm$ 41.09 (106.40–235.91)	56.36 $\pm$ 4.66 (48.89–64.58)	19.96 $\pm$ 2.11 (15.78–23.14)	10.60 $\pm$ 2.51 (5.16–13.77)
3	181.13 $\pm$ 27.82 (129.39–226.61)	56.32 $\pm$ 3.48 (50.18–62.38)	17.06 $\pm$ 1.31 (15.11–19.64)	13.56 $\pm$ 1.66 (10.19–16.29)	159.35 $\pm$ 33.88 (109.35–263.65)	51.36 $\pm$ 4.50 (45.30–63.32)	15.08 $\pm$ 1.97 (10.51–19.52)	14.18 $\pm$ 2.66 (10.43–21.17)	187.30 $\pm$ 36.42 (109.38–242.63)	55.61 $\pm$ 4.53 (45.67–60.80)	17.36 $\pm$ 2.39 (12.16–21.92)	14.28 $\pm$ 2.64 (9.17–18.77)
4	190.12 $\pm$ 24.93 (133.47–217.37)	58.17 $\pm$ 3.95 (49.92–62.79)	16.30 $\pm$ 2.13 (11.14–19.09)	15.60 $\pm$ 1.53 (11.57–17.32)	156.73 $\pm$ 34.65 (86.19–238.24)	50.90 $\pm$ 4.31 (41.58–62.31)	13.97 $\pm$ 2.98 (5.75–17.91)	14.84 $\pm$ 1.88 (9.80–19.01)	187.24 $\pm$ 25.25 (135.07–239.54)	55.35 $\pm$ 3.81 (48.32–61.69)	15.88 $\pm$ 1.13 (13.73–17.75)	15.76 $\pm$ 1.78 (11.61–17.67)

Table S29. Mann-Whitney U Test ($\alpha = 0.05$) performed for the data of the 1st fragment (Table S1, and Table S2). The Mann-Whitney U Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	78	3.286586	0.000671	0.001014	171	0.770928	0.445007	0.440750
Zone 2 vs. 3	40	4.314489	0.000100	0.000016	138	1.663580	0.096566	0.096196
Zone 3 vs. 4	126	1.988182	0.046009	0.046792	131	1.852931	0.063498	0.063892
Zone 1 vs. 4	24	4.747291	0.000100	0.000002	165.5	0.919746	0.361643	0.357705
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	158.5	1.109314	0.270517	0.267295	68	3.558589	0.000200	0.000373
Zone 2 vs. 3	151	1.312114	0.191686	0.189482	27.5	4.653052	0.000100	0.000003
Zone 3 vs. 4	41	4.288244	0.000100	0.000018	134	1.771947	0.076307	0.076403
Zone 1 vs. 4	9	5.153284	0.000100	0.000001	0	5.397252	0.000100	0.000001

Table S30. Mann-Whitney U Test ($\alpha = 0.05$) performed for the data of the 2nd fragment (Table S3, and Table S4). The Mann-Whitney U Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	263	3.336648	0.000654	0.000848	482.5	0.389392	0.699229	0.696986
Zone 2 vs. 3	239	3.658899	0.000169	0.000253	434	1.040604	0.300203	0.298059
Zone 3 vs. 4	433	1.054044	0.293973	0.291863	507.5	0.053709	0.957667	0.957167
Zone 1 vs. 4	92	5.632756	0.000100	0.000001	407.5	1.396440	0.163626	0.162582
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	303	2.79995	0.004587	0.005111	205	4.115470	0.000100	0.000039
Zone 2 vs. 3	158.5	4.74033	0.000100	0.000002	83	5.753733	0.000100	0.000001
Zone 3 vs. 4	341	2.28957	0.021314	0.022047	345	2.235749	0.024649	0.025368
Zone 1 vs. 4	1	6.85519	0.000100	0.000001	0	6.868068	0.000100	0.000001

Table S31. Mann-Whitney U Test ($\alpha = 0.05$) performed for the data of the 3rd fragment (Table S5, and Table S6). The Mann-Whitney U Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	73	2.054046	0.038775	0.039971	156	0.810312	0.422958	0.417761
Zone 2 vs. 3	56	2.694758	0.005813	0.007044	113	0.546489	0.590023	0.584730
Zone 3 vs. 4	83	1.677157	0.093876	0.093512	117	0.395734	0.697130	0.692302
Zone 1 vs. 4	7	4.541515	0.000100	0.000006	118.5	0.339231	0.738964	0.734435
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	29.5	3.69487	0.00010	0.00022	48	2.997093	0.001940	0.002726
Zone 2 vs. 3	38	3.37347	0.00039	0.00074	27.5	3.769237	0.000100	0.000164
Zone 3 vs. 4	35	3.48623	0.00023	0.00049	44	3.147890	0.001056	0.001645
Zone 1 vs. 4	5	4.61689	0.00010	0.00000	0	4.806218	0.000100	0.000002

Table S32. Mann-Whitney U Test ($\alpha = 0.05$) performed for the data of the 4th fragment (Table S7, and Table S8). The Mann-Whitney U Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	98	2.745584	0.005137	0.006040	162	1.014378	0.314021	0.310402
Zone 2 vs. 3	105	2.556233	0.009493	0.010581	195	0.121725	0.905040	0.903116
Zone 3 vs. 4	168	0.852078	0.398284	0.394171	156	1.176679	0.242229	0.239324
Zone 1 vs. 4	8	5.180092	0.000100	<0.000001	199.5	0.000000	1.000000	1.000000

Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	177.5	0.59538	0.55588	0.55159	77	3.315036	0.000595	0.000916
Zone 2 vs. 3	77	3.31395	0.00060	0.00092	17	4.937336	0.000100	0.000001
Zone 3 vs. 4	82	3.17883	0.00104	0.00148	125	2.015515	0.043006	0.043851
Zone 1 vs. 4	22	4.80229	0.00010	0.00000	0	5.397506	0.000100	<0.000001

Table S33. Mann-Whitney *U* Test ($\alpha = 0.05$) performed for the data of the 5th fragment (Table S9, and Table S10). The Mann-Whitney *U* Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	238	3.672327	0.000159	0.000240	428.5	1.114479	0.267021	0.265074
Zone 2 vs. 3	389	1.644826	0.100253	0.100006	465.5	0.617656	0.539406	0.536802
Zone 3 vs. 4	495	0.221548	0.826274	0.824666	427.5	1.127894	0.261274	0.259365
Zone 1 vs. 4	33	6.424893	0.000100	<0.000001	488	0.315549	0.754354	0.752345
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	214	3.99595	0.00010	0.00006	186	4.370939	0.000100	0.000012
Zone 2 vs. 3	76.5	5.84168	0.00010	<0.000001	147	4.894646	0.000100	0.000001
Zone 3 vs. 4	206	4.10261	0.00010	0.00004	288	3.001450	0.002304	0.002687
Zone 1 vs. 4	2	6.84208	0.00010	<0.000001	0	6.868382	0.000100	<0.000001

Table S34. Mann-Whitney U Test ($\alpha = 0.05$) performed for the data of the 6th fragment (Table S11, and Table S12). The Mann-Whitney U Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	36	4.422690	0.000100	0.000010	194	0.148789	0.883924	0.881720
Zone 2 vs. 3	180	0.527477	0.602072	0.597863	157.5	1.136157	0.258990	0.255891
Zone 3 vs. 4	141	1.582430	0.114314	0.113551	179	0.554527	0.583471	0.579218
Zone 1 vs. 4	15	4.990741	0.000100	0.000001	190	0.256976	0.800301	0.797197
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	78	3.28797	0.00067	0.00101	21	4.829800	0.000100	0.000001
Zone 2 vs. 3	46.5	4.14002	0.00010	0.00004	96	2.800210	0.004266	0.005107
Zone 3 vs. 4	163	0.98747	0.32713	0.32341	133	1.798915	0.071831	0.072032
Zone 1 vs. 4	0	5.39751	0.00010	<0.000001	0	5.397759	0.000100	<0.000001

Table S35. Mann-Whitney U Test ($\alpha = 0.05$) performed for the data of the 7th fragment (Table S13, and Table S14). The Mann-Whitney U Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	45	3.109336	0.001238	0.001875	119	0.320356	0.753110	0.748699
Zone 2 vs. 3	98	1.111823	0.270192	0.266214	49	2.958580	0.002250	0.003091
Zone 3 vs. 4	99	1.074134	0.286944	0.282763	83	1.677157	0.093876	0.093512
Zone 1 vs. 4	16	4.202314	0.000100	0.000026	90	1.413334	0.159609	0.157557
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	40	3.29839	0.00055	0.00097	24	3.902592	0.000100	0.000095
Zone 2 vs. 3	37	3.41147	0.00033	0.00065	36.5	3.430949	0.000300	0.000601
Zone 3 vs. 4	104.5	0.86700	0.39099	0.38594	40.5	3.279838	0.000600	0.001039
Zone 1 vs. 4	0	4.80578	0.00010	0.00000	0	4.807100	0.000100	0.000002

Table S36. Mann-Whitney *U* Test ($\alpha = 0.05$) performed for the data of the 8th fragment (Table S15, and Table S16). The Mann-Whitney *U* Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	154	4.800208	0.000100	0.000002	430	1.094313	0.275822	0.273818
Zone 2 vs. 3	373	1.859661	0.062647	0.062934	504	0.100704	0.920658	0.919786
Zone 3 vs. 4	512	-0.006714	1.000000	0.994643	500	0.154412	0.878520	0.877285
Zone 1 vs. 4	48	6.223486	0.000100	<0.000001	447	0.866051	0.388950	0.386462
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	352.5	2.13509	0.03209	0.03275	107.5	5.425253	0.000100	<0.000001
Zone 2 vs. 3	128	5.14961	0.00010	<0.000001	93	5.619457	0.000100	<0.000001
Zone 3 vs. 4	415.5	1.28933	0.19869	0.19728	417	1.262225	0.208361	0.206868
Zone 1 vs. 4	29	6.47905	0.00010	<0.000001	0	6.868854	0.000100	<0.000001

Table S37. Mann-Whitney *U* Test ($\alpha = 0.05$) performed for the data of the 9th fragment (Table S17, and Table S18). The Mann-Whitney *U* Test was used to check if there are significant differences between compared zones (1–4). Zones are described in the main text. The significant results are bolded. TSA – cell transverse surface area. CWP – cell wall perimeter. CW – cell width. CT – cell thickness

Comparison	TSA				CWP			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	60	3.773487	0.000100	0.000161	119.5	2.164210	0.029364	0.030448
Zone 2 vs. 3	171	0.770928	0.445007	0.440750	177.5	0.595158	0.556037	0.551738
Zone 3 vs. 4	188	0.311076	0.759181	0.755743	174	0.689777	0.494659	0.490334
Zone 1 vs. 4	12	5.071892	0.000100	<0.000001	92	2.907885	0.002922	0.003639
Comparison	CW				CT			
	U	Z	p	p (asympt.)	U	Z	p	p (asympt.)
Zone 1 vs. 2	44	4.20688	0.00010	0.00003	28.5	4.626216	0.000100	0.000004
Zone 2 vs. 3	85.5	3.08414	0.00152	0.00204	61	3.747140	0.000100	0.000179
Zone 3 vs. 4	120.5	2.13716	0.03153	0.03259	130	1.880334	0.059578	0.060063
Zone 1 vs. 4	0	5.39700	0.00010	<0.000001	0	5.396999	0.000100	<0.000001

Table S38. Measurements of four radial cell files (marked A–D) in *Picea abies* (L.) H.Karst transverse section encompassing vascular cambium and derivatives differentiating/maturing into secondary xylem (tissues fragment shown in Fig. 5 of the main text). Analyzed cells (i.e. cambial cells and cells produced by the vascular cambium) were divided into four zones (numbered I–IV), similarly to the four zones designated in case of *Robinia pseudoacacia* L. (cells in zone I belong to the vascular cambium, cells in zone IV show the most advanced stage of development into secondary xylem elements). Fifty three cells were studied in total. Measurements of cells concerned: cell transverse surface area (TSA), cell wall perimeter (CWP), cell width (CW – cell tangential dimension), and cell thickness (CT – cell radial dimension). Average value, standard deviation, minimal and maximal values of TSA, CWP, CW, and CT are shown for each zone. Values for TSA are in μm^2 , and for CWP, CW, CT in μm

I							II						
Zone	File	Cell no.	TSA	CWP	CW	CT	Zone	File	Cell no.	TSA	CWP	CW	CT
I	A	1	167.06	71.91	26.90	6.61	II	A	4	360.29	87.80	29.16	13.85
		2	222.25	82.02	29.59	8.03			5	480.43	98.97	31.97	16.77
		3	394.75	88.12	29.49	17.16			6	521.00	101.44	31.10	16.37
	B	1	144.82	84.63	36.59	4.90		B	4	406.01	97.02	35.24	12.81
		2	138.05	85.56	36.63	3.07			5	525.84	100.67	36.60	16.11
		3	221.44	86.10	35.03	7.20			6	549.78	104.25	37.19	16.47
	C	1	133.40	74.43	29.99	4.37		C	4	361.39	89.31	31.88	11.63
		2	151.50	72.52	30.05	6.55			5	526.38	95.91	32.82	19.66
		3	219.15	77.93	31.40	7.61			6	458.47	93.11	32.00	16.11
	D	1	130.91	71.78	30.99	5.37		D	4	309.41	80.66	29.28	12.34
		1	200.94	75.19	31.46	7.44			5	470.61	91.08	31.64	17.94
		3	195.82	78.42	30.76	6.20			6	533.63	100.24	31.46	18.53
Avg.		193.34	79.05	31.57	7.04	Avg.		458.60	95.04	32.53	15.72		
Min		130.91	71.78	26.90	3.07	Min		309.41	80.66	29.16	11.63		
Max		394.75	88.12	36.63	17.16	Max		549.78	104.25	37.19	19.66		
SD		72.78	6.02	3.00	3.51	SD		80.74	6.85	2.57	2.54		

Continued on next page

Table S38. Measurements of four radial cell files (marked A–D) in *Picea abies* (L.) H.Karst transverse section encompassing vascular cambium and derivatives differentiating/maturing into secondary xylem (tissues fragment shown in Fig. 5 of the main text). Analyzed cells (i.e. cambial cells and cells produced by the vascular cambium) were divided into four zones (numbered I–IV), similarly to the four zones designated in case of *Robinia pseudoacacia* L. (cells in zone I belong to the vascular cambium, cells in zone IV show the most advanced stage of development into secondary xylem elements). Fifty three cells were studied in total. Measurements of cells concerned: cell transverse surface area (TSA), cell wall perimeter (CWP), cell width (CW – cell tangential dimension), and cell thickness (CT – cell radial dimension). Average value, standard deviation, minimal and maximal values of TSA, CWP, CW, and CT are shown for each zone. Values for TSA are in μm^2 , and for CWP, CW, CT in μm – continued from previous page

Zone	File	Cell no.	TSA	CWP	CW	CT	Zone	File	Cell no.	TSA	CWP	CW	CT
III	A	7	596.73	101.70	30.78	19.99	IV	A	11	652.58	100.36	31.38	23.24
		8	693.61	107.79	31.40	23.20			12	975.64	121.82	30.97	34.55
		9	591.02	102.73	31.54	21.65			13	990.24	122.42	31.43	34.20
		10	587.00	101.83	31.01	20.15			-	-	-	-	-
	B	7	660.15	111.68	37.01	19.83		B	11	693.98	106.95	31.82	24.24
		8	745.91	114.11	36.19	22.43			12	864.95	121.29	32.45	30.04
		9	679.14	111.19	36.13	21.16			13	785.27	112.86	33.47	26.50
		10	636.85	106.51	33.77	21.60			14	718.48	111.15	34.33	23.67
	C	7	675.35	108.22	33.35	22.90		C	11	648.61	101.41	27.49	26.86
		8	751.45	112.28	32.76	26.38			12	633.87	102.66	29.46	26.87
		9	678.61	106.94	30.46	24.20			13	805.84	114.51	29.62	31.40
		10	587.32	97.50	27.51	23.32			-	-	-	-	-
	D	7	676.66	107.15	32.11	23.73		D	11	795.20	111.61	31.83	27.86
		8	574.43	100.89	31.70	19.60			12	847.56	114.31	31.67	29.63
		9	483.65	92.99	30.70	19.83			13	982.03	123.93	31.54	34.23
		10	651.13	101.32	31.70	21.78			-	-	-	-	-
	Avg.		641.81	105.30	32.38	21.98		Avg.		799.56	112.71	31.34	28.71
	Min		483.65	92.99	27.51	19.60		Min		633.87	100.36	27.49	23.24
	Max		751.45	114.11	37.01	26.38		Max		990.24	123.93	34.33	34.55
	SD		68.90	5.79	2.45	1.91		SD		128.15	8.17	1.75	4.00

Table S39. Average values based on measurements of vascular cambium and secondary xylem of *Picea abies* (L.) H.Karst (Fig. 5 in the main text, and Supplementary Information Table S38) for each analyzed zone, as well as percentage change ($\Delta\%$) in average cell transverse surface area (TSA), average cell wall perimeter (CWP), average cell width (CW), and average cell thickness (CT) between zones I and IV

Zone	TSA [μm^2]	CWP [μm]	CW [μm]	CT [μm]
I	193.34	79.05	31.57	7.04
II	458.60	95.04	32.53	15.72
III	641.81	105.30	32.38	21.98
IV	799.56	112.71	31.34	28.71
$\Delta\%$	313.6%	42.58%	- 0.7%	307.8%