

Supplementary Material

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Supplementary Tables 1-3

Supplementary Figure 1

Table S1. Identification of Kuras and non-Kuras patatin isoforms along 2-DE gel spots in endodormant potato tubers of Kennebec cultivar by MALDI-TOF and MALDI-TOF/TOF MS.

Spot No. ^a	pI ^b	Patatin isoform ^c	Mascot score ^c	Sequence Coverage (%) ^e	Matched peptides ^f
2	4.88	Patatin-3-Kuras 1 (PT3K1)	571	58	13
5	4.96	Non-Kuras isoform	106	8	3
6	4.96	–	–	–	–
7	5.02	Non-Kuras isoform	200	40	11
8	5.02	Non-Kuras isoform	299	25	6
9	5.05	Non-Kuras isoform	324	28	7
10	5.08	Non-Kuras isoform	135	28	10
11	5.12	Non-Kuras isoform	337	32	9
12	5.13	Non-Kuras isoform	127	19	10
13	5.14	Non-Kuras isoform	178	26	10
14	5.16	Non-Kuras isoform	267	31	9
15	5.20	Non-Kuras isoform	146	17	7
16	5.20	Non-Kuras isoform	294	27	12
17	5.23	Non-Kuras isoform	181	20	8
18	5.25	Non-Kuras isoform	251	34	13
19	5.29	–	–	–	–
20	5.27	Non-Kuras isoform	215	27	10

^aGel position of numbered spots is shown in Figure 2. ^bExperimental pI value on 2-DE gels.

^cAll identified proteins were matched to the patatin protein of *S. tuberosum*. ^dStatistically significant Mascot scores (*P*-value < 0.05).

^ePercentage of coverage of the entire amino acid sequence by matched peptides. ^fTotal number of identified peptides matched for the patatin protein.

Table S2. Identification of the patatin isoforms along the 2-DE spot patterns in potato tubers of Kennebec cultivar in the endodormancy tuber stage by MALDI-TOF and MALDI-TOF/TOF MS.

Spot No. ^a	Protein identity (abbrev.) ^b	Accession	Mascot Score ^c	Match/Cov (%) ^d	Peptides identified	
					[M+H] ⁺	Sequence
2	Patatin-3-Kuras 1 (PT3K1)	PT3K1_SOLTU	571	13/58	773.39	TPELDAK
					1,047.60	TNKPVIFTK
					1,167.60	YLMQVLQEK
					1,289.67	LAQEDPAFASIK
					1,448.72	DIIPFYFDHGPK
					1,499.78	IFPSGFHLVEPK
					1,720.80	SVSEDNHETYEVALK
					1,757.93	VHQALTEVAISSFDIK
					1,825.91	QMLLLSLGTGTNSEFAK
					1,864.87	WGILQWMSPLWEMR
					3,137.41	SAASSYMNDYYLSTVFQALDSQNNYLK
					3,475.54	VQENALTGTATTFFDDASVANMILLVQVGENLLK
					3,612.79	LADYFDVIGGTGTGGLLTAMITTPNENNRPFAAAK
5	Patatin-08	PAT08_SOLTU	106	3/8	876.42	DPAFASIR
	Patatin-D2	PATD2_SOLTU			1,013.49	TYTAEETAK
	Patatin-D3	PATD3_SOLTU			1,709.79	YLMQVLQENLGETR

6	—	—			—	—
7	Patatin-08	PAT08_SOLTU	200	11/40	759.36	SPELDAK
	Patatin-D2	PATD2_SOLTU			876.43	DPAFASIR
	Patatin-D3	PATD3_SOLTU			922.34	MDNNADAR
					1,013.49	TYTAEETAK
					1,047.58	TNKPVIFTK
					1,308.60	DNPETYEEALK
					1,709.82	YLMQVLQENLGETR
					1,728.83	MLLLSLGTGTTSEFDK
					1,757.91	VHQALTEVAISSFDIK
					2,882.16	MTDAASSYMTDYVLSTVFQAQNSQK
					3,569.59	VQENALTGTTTEMDDASEANMESLVQVGENLLK
8	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU	299	6/25	1,031.49	HSQNNYLR
	Patatin-B1	PATB1_SOLTU			1,133.62	YLLQVLQEK
	Patatin-04	PAT04_SOLTU			1,305.65	LAQEDPAFSSIK
	Others	—			1,757.91	VHQALTEVAISSFDIK
					1,869.88	QMLLLSLGTGTNSEFDK
					3,642.78	LADYFDVIGGTSTGGLLTAMITTPNENNRPFAAAK
9	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU	324	7/28	759.35	SPELDAK
	Patatin-B1	PATB1_SOLTU			1,031.49	HSQNNYLR
	Patatin-04	PAT04_SOLTU			1,133.64	YLLQVLQEK

	Others	–			1,305.65	LAQEDPAFSSIK
					1,757.90	VHQALTEVAISSFDIK
					1,869.88	QMLLLSLGTGTNSEFDK
					3,642.76	QMLLLSLGTGTNSEFDKAMITTPNENNRPFAAAK
10	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU	135	10/28	758.38	SPELDAK
	Patatin-04	PAT04_SOLTU			948.52	FAKLLSDR
	Patatin-15	PAT15_SOLTU			1,030.49	HSQNNYLR
	Others	–			1,046.61	TNKPVIFTK
					1,062.43	TYTAEAAK
					1,132.65	YLLQVLQEK
					1,304.66	LAQEDPAFSSIK
					1,436.68	DSPETYEEALKR
					1,756.94	VHQALTEVAISSFDIK
					1,868.92	QMLLLSLGTGTNSEFDK
11	Patatin group J1	PATJ1_SOLTU	337	9/32	922.36	MDNNADAR
	Patatin-04	PAT04_SOLTU			1,031.49	HSQNNYLR
	Patatin-06	PAT06_SOLTU			1,047.58	TNKPVIFTK
	Others	–			1,167.58	YLMQVLQEK
					1,305.65	LAQEDPAFSSIK
					1,757.92	VHQALTEVAISSFDIK
					1,853.90	QMLLLSLGTGTNSEFDK

					1,856.02	GIIPGTILEFLEGQLQK
					3,306.61	WMLAIQQMTNAASSYMTDYYISTVFAQAR
12	Patatin-B2	PATB2_SOLTU	127	10/19	704.28	SLDYK
	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU			706.28	ANKASH
	Patatin-04	PAT04_SOLTU			758.38	SPELDAK
	Others	–			1,030.49	HSQNNYLR
					1,046.61	TNKPVIFTK
					1,062.43	TYTAEAAK
					1,132.65	YLLQVLQEK
					1,304.66	LAQEDPAFSSIK
					1,360.54	DSPETYEEALK
					1,436.68	DSPETYEEALKR
13	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU	178	10/26	75.,38	SPELDAK
	Patatin-04	PAT04_SOLTU			1,030.49	HSQNNYLR
	Patatin-06	PAT06_SOLTU			1,046.61	TNKPVIFTK
	Others	–			1,062.43	TYTAEAAK
					1,132.65	YLLQVLQEK
					1,304.66	LAQEDPAFSSIK
					1,360.54	DSPETYEEALK
					1,436.68	DSPETYEEALKR
					1,756.94	VHQALTEVAISSFDIK

14	Patatin-03	PAT03_SOLTU	267	9/31	1,868.92	QMLLLSLGTGTNSEFDK
					759.37	SPELDAK
	Patatin-05	PAT05_SOLTU			982.46	TYTAQEAAK
	Patatin-07	PAT07_SOLTU			1,031.49	HSQNNYLR
	Others	–			1,047.58	TNKPVIFTK
					1,133.64	YLLQVLQEK
					1,305.64	LAQEDPAFSSIK
					1,757.88	VHQALTEVAISSFDIK
15			146	7/17	1,869.87	QMLLLSLGTGTNSEFDK
					3,642.78	LADYFDVIGGTSTGGLLTAMITTPNENNRPFAAAK
	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU			758.38	SPELDAK
	Patatin-04	PAT04_SOLTU			1,030.49	HSQNNYLR
	Patatin-B2	PATB2_SOLTU			1,046.61	TNKPVIFTK
	Others	–			1,062.55	TYTAEEAAK
					1,132.65	YLLQVLQEK
					1,304.66	LAQEDPAFSSIK
16			294	12/27	1,436.68	DSPETYEEALKR
	Patatin-B1	PATB1_SOLTU			758.38	SPELDAK
	Patatin-06	PAT06_SOLTU			947.56	FAKLLSNR
	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU			1,030.49	HSQNNYLR
	Others				1,046.61	TNKPVIFTK

17	Patatin-13 Patatin-05 Patatin-03 Others	PAT13_SOLTU PAT05_SOLTU PAT03_SOLTU —	181	8/20	1,062.43	TYTAEAAK
					1,126.58	TNKPVIFTK
					1,132.65	YLLQVLQEK
					1,280.58	DSPETYEEALK
					1,304.66	LAQEDPAFSSIK
					1,436.68	DSPETYEEALKR
					1,756.94	VHQALTEVAISSFDIK
					1,868.92	QMLLLSLGTGTNSEFDK
					758.44	SPELDAK
					921.36	MDNNADAR
18	Patatin-03 Patatin-05 Patatin-07 Others	PAT03_SOLTU PAT05_SOLTU PAT07_SOLTU —	251	13/34	1,046.61	TNKPVIFTK
					1,065.45	THTAQETAK
					1,204.57	AEEDPAFASIR
					1,261.65	VQENALTGTTTK
					1,360.67	RAEEDPAFASIR
					1,436.68	DSPETYEEALKR
					758.38	SPELDAK
					921.36	MDNNADAR
					1,046.61	TNKPVIFTK
					1,166.60	YLMQVLQEK
					1,204.57	AEEDPAFASIR

					1,261.65	VQENALTGTTTK
					1,360.67	RAEEDPAFASIR
					1,463.69	DNPETYEEALKR
					1,706.9	YLMQVLQEKLGETR
					1,756.94	VHQALTEVAISSFDIK
					1,789.74	YDGKYLQVLQEK
					1,834.98	QLLLSLGTGTNSEFDK
					2,274.15	ADDASEANMELLVQVGENLLK
19	–	–			–	–
20	Patatin-B1	PATB1_SOLTU	215	10/27	758.38	SPELDAK
	Patatin-06	PAT06_SOLTU			947.56	FAKLLSNR
	Patatin-2-Kuras 1 (pt2k1)	PT2K1_SOLTU			1,030.49	HSQNNYLR
	Others	–			1,046.61	TNKPVIFTK
					1,062.43	TYTAEAAK
					1,132.65	YLLQVLQEK
					1,304.66	LAQEDPAFSSIK
					1,436.68	DSPETYEEALKR
					1,756.94	VHQALTEVAISSFDIK
					1,868.92	QMLLSLGTGTNSEFDK

^aGel position of numbered spots is shown in Figure 2. ^bAll identified proteins were matched to the patatin protein of *S. tuberosum*. ^cStatistically significant Mascot scores (*P*-value < 0.05). ^dTotal number of identified spectra matched for the protein / Percentage of coverage of the entire amino acid sequence by matched peptides.

Table S3. Phosphorylated peptides and phosphorylation sites of the patatin in endodormancy and bud break tuber stages (Kennebec cultivar) identified by Mascot search from MALDI-TOF and MALDI-TOF/TOF MS data.

Spot no. ^a	Patatin name	Potato tuber stage	Phosphopeptides and phosphosites ^b	Position ^c
1	PT3K1	Bud Break	<u>T</u> PELDAK	162-168
2	PT3K1	Endodormancy	<u>S</u> VSEDNHETYEVALK	341-355
			WGILQWM <u>S</u> PLWEMR	266-279
		Bud Break	<u>S</u> VSEDNHETYEVALK	341-355
			WGILQWM <u>S</u> PLWEMR	266-279
9	Patatin mix	Bud Break	<u>S</u> FLILFFMILATTSSTCAK	6-24
10	Patatin mix	Endodormancy	<u>T</u> YTAEAAK	269-277
		Bud Break	<u>T</u> YTAEAAK	269-277
11	Patatin mix	Endodormancy	VHQAL <u>T</u> EVAISSFDIK	144-159
		Bud Break	VHQAL <u>T</u> EVAISSFDIK	144-159
			<u>S</u> FLILFFMILATTSSTCAK	6-24
			<u>S</u> FLIL <u>S</u> VMILATTSSTFASLEEMVTVLSDGGGIK	6-40
			<u>M</u> YDICYSAAPTYFPPHYFATNTINGDK	181-209
12	Patatin mix	Endodormancy	ANKA <u>S</u> H	381-386
			<u>S</u> LDYK	247-251
			<u>T</u> YTAEAAK	269-277
		Bud Break	<u>T</u> YTAEAAK	269-277
13	Patatin mix	Endodormancy	<u>T</u> YTAEAAK	269-277
		Bud Break	<u>T</u> YTAEAAK	269-277
15	Patatin mix	Endodormancy	<u>T</u> YTAEAAK	269-277
		Bud Break	<u>T</u> YTAEAAK	269-277
			LEEMV <u>T</u> VLSDGGGIK	25-44
			<u>M</u> YDICYSTAAPIYFPPHHFVTHTSNGAR	180-208
			VQENAL <u>T</u> GTTTEMDDASEANMELLVQVGETLLK	319-351
16	Patatin mix	Endodormancy	<u>T</u> YTAEAAK	269-277
		Bud Break	<u>T</u> YTAEAAK	269-277
			<u>S</u> LDYK	247-251
			WMLAIQQMT <u>N</u> AASSYMTDYYISTVFQAR	283-310
			VQENAL <u>T</u> GTTTEMDDASEANMELLVQVGETLLK	319-351
17	Patatin mix	Endodormancy	<u>T</u> HTAEETAK	270-278
18	Patatin mix	Endodormancy	<u>Y</u> DGK <u>Y</u> LMQVLQEK	126-138
		Bud Break	<u>T</u> HTAEETAK	270-278
			<u>S</u> LDYK	247-251
			<u>S</u> LNK	248-252
			D <u>S</u> PETYEEALK	358-368
			VQENAL <u>T</u> GTTTK	320-331
20	Patatin mix	Endodormancy	<u>T</u> YTAEAAK	269-277
		Bud Break	<u>T</u> YTAEAAK	269-277
			<u>M</u> ATTK	1-5
			<u>S</u> LDYK	247-251
			WMLAIQQMT <u>N</u> AASSYMTDYYISTVFQAR	283-310

^aSpot code numbers according to Fig. 2. ^bPhosphorylation sites are underlined. ^cPhosphopeptide position in the polypeptide sequence.

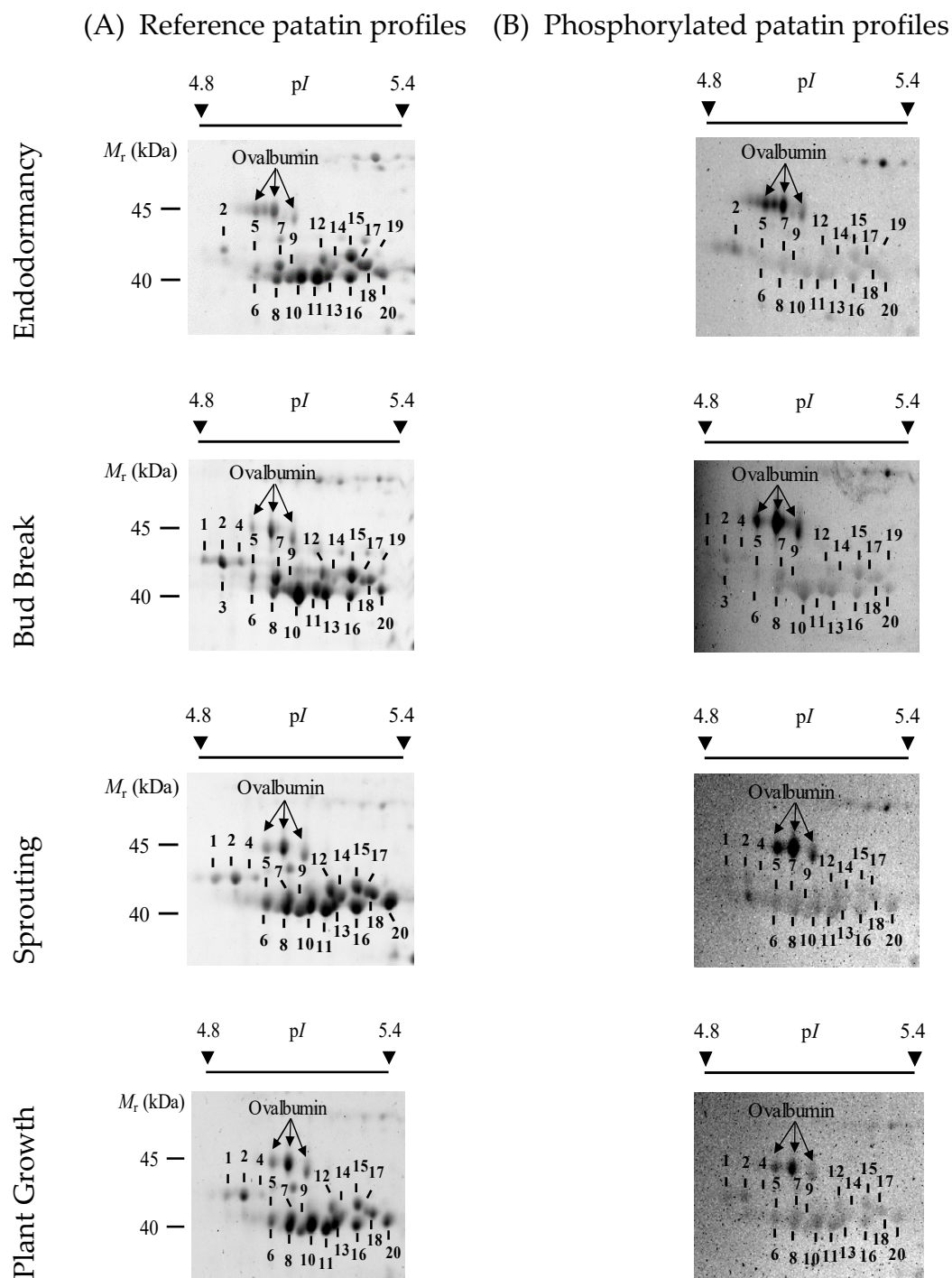


Figure S1. In-gel identification of phosphorylated patatin isoforms in Kennebec potato cultivar along different tuber life stages: endodormancy, tuber break, sprouting and plant growth. (A) Reference patatin profiles on 2-DE gels stained with SYPRO Ruby total-protein stain. (B) Phosphorylated patatin profiles on 2-DE gels stained with Pro-Q Diamond specific-phosphoprotein stain. Gel position of ovalbumin (45.0 kDa) phosphoprotein marker is shown.