

Chen, X., Jin, C., Wang, P., Chen, K., Zhang, X., Li, J., Gong, C. and Wang, A. 2017. Genome-wide analysis and endo- $\beta$ -mannanase gene families expression profiling of tomato and soybean. – Nordic Journal of Botany doi: 10.1111/njb.01580

## Appendix 1

Table A1. Primers used for RT-PCR analysis of tomato and soybean genes.

Gene name	Forward (5'--3')	Reverse (5'--3')	Product (bp)
<i>LeMAN1</i>	CTACTATCCATGCATACACTG	TACTATTATTGATGGATTTAGG	466
<i>LeMAN2/5</i>	AGATTGATTTTGCCACTATTC	ACTTATTTTCTTCCATGTCCT	457
<i>LeMAN3</i>	ATTAGTAACCATCTTATCAATG	CATGTTTGGAATATCATCTC	498
<i>LeMAN4a</i>	GGAATAATTTTATCTCCAACAAAT	CAACCCAAACAACCTTTTCATG	488
<i>LeMAN6</i>	ACCACAATTCATATTACCCT	GAGAATCATAGCTTAGATAAATTAC	474
<i>LeMAN7</i>	GAACTGATTTTCATCGCCAAC	CTTCAAACGTAAAGCATCTTAT	554
<i>LeMAN8</i>	CTATGGAAATTCAGATACTC	TTATCTAACTTCTTGCTAACT	602
<i>LeMAN9</i>	AACTCTATACTTTCAACCGTT	AATAATACAAGGGAGTAAACC	548
<i>LeMAN10</i>	TGATTTGCGCTCAGTTCACAT	CTTTGGGTTATCGTTGTTTCTT	541
<i>LeMAN11</i>	ATTGATTTTGCTCTGTACAT	CACAAACAGATTCTTCATTGTAT	512
<i>LeMAN12</i>	CATTGATTTTACTTCCGTTT	TTGTTTCTCCTATAATGTCCG	518
<i>TI8S</i>	AGGAATTGACGGAAGGGCAC	GTGCGGCCAGAACATCTAAG	Belotserkovsky et al. 2007
<i>GmMAN1</i>	AAACAAATCAATCCAGGGTAC	TGCTTGTAATGGGAGGAATAT	551
<i>GmMAN2</i>	AGAAATAGGACTCGAAGGGTT	TTTACATGAGGTAGGCGAAAT	533
<i>GmMAN3</i>	GCTTGAAGGATTTTATGGT	GATGATAGAATGCTTGTTAG	539
<i>GmMAN4</i>	CGGACAATCAACACCACAAAG	TGAAACTGCAAACCAAACATG	598
<i>GmMAN5</i>	TGACTTCGCTTCTGTTACAT	GCTAATACTCTTGCATCCACC	541
<i>GmMAN6</i>	CTTCAATGTAGGAACCGATT	AGTTTCTAACTCCCTTCACTCT	577
<i>GmMAN7</i>	ATAAGGAACTCCAAAATCTCAAAT	CTTAAACCACAAAAGAACCCAT	520
<i>GmMAN8</i>	CGCAACAGTGCATTCCTAC	AATTCTTGCCACTACGATTAAG	540
<i>GmMAN9</i>	ACTTTGTTAGCAACCATCTCAT	CTTAAATCTTCCAATACTCTTCC	471
<i>GmMAN10</i>	ATCCCAATACATATGCTACAC	ATAGCATTACAATTGGAAACT	592
<i>GmMAN11</i>	TTCGACATAGGAACAGACTTC	CGATTGTATCTACAAAACCAAAAT	545
<i>GmMAN12</i>	CTATTGACCCGATGCACTTAT	CAATGGAAGAGCCACTAATCT	585
<i>GmMAN13</i>	CCAGACTTGGGTCTGATTTTATT	TATCACGATTTCTATTCCATTTTGT	525
<i>GmMAN14</i>	AGATTGACTGTGAACCCTGAG	GCTTTTATTCCACATCTTTTC	523
<i>GmMAN15</i>	AGTTCAACTGTCAACCCTGAG	CATACAGCGATTTCTATTCCAT	558
<i>GmMAN16</i>	CATTACAAACAACCAAATCCCTG	TATCTCCGTTCAAAATGATGTTAC	563
<i>GmMAN17</i>	AGAAATATCAGTTCAACCCAAACT	GCAACTTTCCACATACGGAGT	568
<i>GmMAN18</i>	TTACAAACAACCAAATCCCTG	GGTAACCACATTCGGAAGAT	593
<i>GmMAN19</i>	GAGTGGACTTCGCTTCTGTTC	ATGACCTTAGCATTACAATTCG	514
<i>GmMAN20</i>	GCCGGATAAGAAACAATTCAAT	CACCACCATTGTGATAGTTAGTGAG	531
<i>GmUBI3</i>	GGGTTTTAAGCTCGTTGTGT	TCCCCTCTAGCCAATTCAGA	Lin et al. 2011

Table A2. Intron analysis in other species.

Gene	No. of Intron	Description
<i>Zea mays</i> (ZmMAN)		
<i>ZmMAN</i>		
<i>ZmMAN1</i>	4	
<i>ZmMAN2</i>	4	
<i>ZmMAN3</i>	2	Loss of introns III、 IV
<i>ZmMAN4</i>	3	Loss of introns III
<i>ZmMAN5</i>	4	
<i>ZmMAN6</i>	3	Loss of introns IV
<i>Vitis vinifera</i> (VvMAN)		
<i>VvMAN1</i>	5	Gain of intron
<i>VvMAN2</i>	4	
<i>VvMAN3</i>	4	
<i>VvMAN4</i>	4	
<i>VvMAN5</i>	5	Gain of intron
<i>VvMAN6</i>	4	
<i>VvMAN7</i>	4	
<i>VvMAN8</i>	13	Gain of intron
<i>VvMAN9</i>	4	
<i>VvMAN10</i>	4	
<i>VvMAN11</i>	4	
<i>VvMAN12</i>	4	
<i>VvMAN13</i>	6	Gain of intron
<i>Malus pumila</i> (MdMAN)		
<i>MdMAN1</i>	4	
<i>MdMAN2</i>	4	
<i>MdMAN3</i>	5	Gain of intron
<i>MdMAN4</i>	22	Gain of intron
<i>MdMAN5</i>	5	Gain of intron
<i>MdMAN6</i>	4	
<i>MdMAN7</i>	4	
<i>MdMAN8</i>	4	
<i>MdMAN9</i>	5	Gain of intron
<i>MdMAN10</i>	4	
<i>Chlamydomonas reinhardtii</i> (CrMAN)		
<i>CrMAN1</i>	12	Gain of intron
<i>CrMAN2</i>	11	Gain of intron
<i>CrMAN3</i>	8	Gain of intron
<i>CrMAN4</i>	9	Gain of intron
<i>CrMAN5</i>	16	Gain of intron
<i>CrMAN6</i>	10	Gain of intron

			L	A	W	M
LeMAN3			TTG	GCG	TGG	ATG
LeMAN3-like	1193		TTG	GCC	GTG	GAT
				↑	V	D

Figure A1. Comparative analysis of the genomic sequences of *LeMAN3* and *LeMAN3-like*. The frame shift resulting from the C1198 insertion generates a premature stop codon.

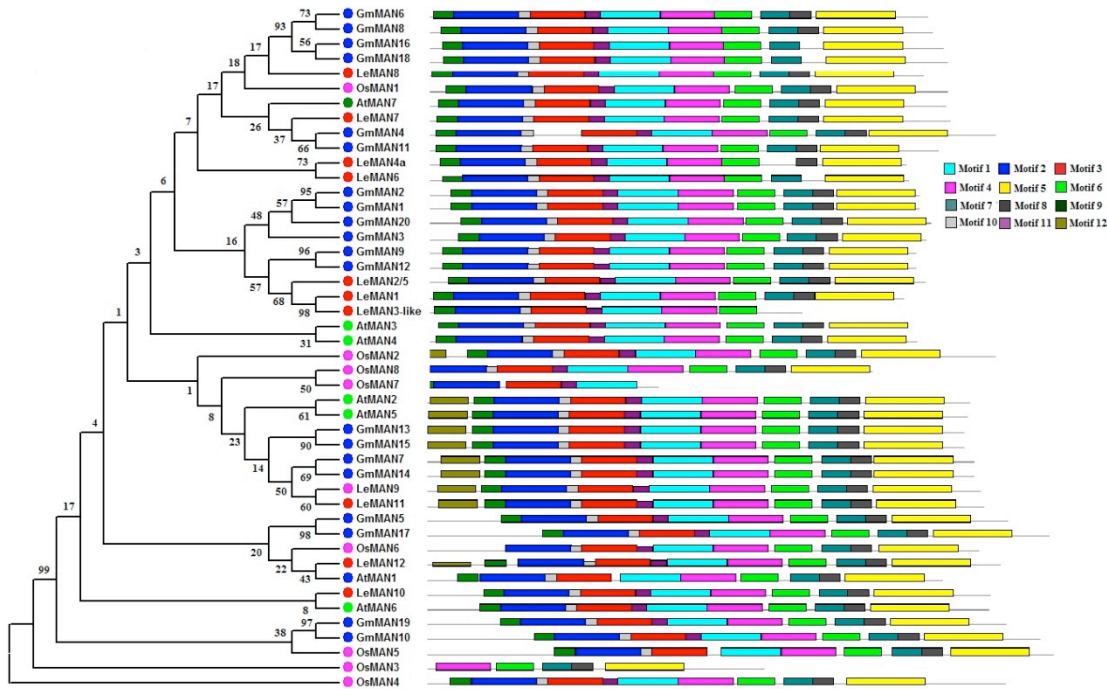


Figure A2. Motifs found in the endo- $\beta$ -mannanases in *Arabidopsis*, tomato, soybean and rice. (A) The phylogenetic tree was constructed using endo- $\beta$ -mannanases from *Arabidopsis* (green dots), tomato (red dots), soybean (blue dots) and rice (pink dots). (B) The position of 12 motifs in various endo- $\beta$ -mannanases sequences.