

Supplementary Table S5:

Putative plant cell wall-degrading enzymes in *U. maydis* and other fungi

Detailed comparison between <i>U. maydis</i> and <i>A. nidulans</i>					Total number of enzymes in various fungi ^a									
Family	Glycoside hydrolases	MUMDB accession	<i>Um</i>	<i>An</i>	<i>Um</i>	<i>An</i>	<i>Mg</i>	<i>Fg</i>	<i>Nc</i>	<i>Sc</i>	<i>Sp</i>	<i>Pc</i>	<i>Cc</i>	<i>Cn</i>
1	β-glucosidase			3	0	3	3	3	1	0	0	2	2	0
2	β-galactosidase β-mannosidase β-glucuronidase	UM05229	1	3 3 3	1	9	6	5	5	0	0	0	0	0
3	β-glucosidase β-glucosidase/ β-xylosidase β-xylosidase β-xylosidase/arabinosidase β-N-acetylglucosaminidase	UM04032, UM06075, UM00446	3	13 2 2 1 2	3	20	19	18	9	0	1	7	6	3
5	endomannanase β-1,4-endoglucanase β-1,3-exoglucanase β-1,6-glucanase endoglycoceramidase	UM01604 UM00235, UM00876, UM01165, UM04364, UM05550, UM06102, UM10029, UM10211, UM11322	1 9	6 4 3 1 1	10	15	13	2	7	6	3	4	1	12
6	cellobiohydrolase type II			2	0	2	3	1	3	0	0	1	4	0
7	cellobiohydrolase type I			3	0	3	6	2	5	0	0	5	3	0
8	β-1,4-endoglucanase	UM00866	1		1	0	0	0	0	0	0	0	0	0
10	endoxylanase	UM03411, UM04422	2	3	2	3	5	5	4	0	0	6	3	0
11	endoxylanase	UM06350	1	2	1	2	5	2	2	0	0	1	6	0
12	xyloglucan-endoglucanase			1	0	1	3	3	1	0	0	2	0	0
26	endomannanase			3	0	3	0	0	1	0	0	0	0	0
27	α-galactosidase	UM04503	1	3	1	3	4	2	0	5	1	3	0	0
28	endopolygalacturonase exopolygalacturonase xylogalacturonan hydrolase rhamnogalacturonan hydrolase	UM02510	1	3 4 1 1	1	9	3	6	2	1	0	1	1	1
35	β-galactosidase	UM02356	1	4	1	4	0	2	2	0	0	1	0	0
36	α-galactosidase			4	0	4	2	2	1	0	0	0	0	1
42	β-galactosidase	UM02204	1		1	0	0	0	0	0	0	0	0	0
43	endoarabinanase α-L-arabinofuranosidase β-xylosidase	UM01427, UM03416	2	4 3 8	2	15	18	1	6	0	0	0	1	0
45	β-1,4-endoglucanase	UM02523, UM04816, UM06332	3	1	3	1	1	0	1	0	0	0	0	0
51	α-L-arabinofuranosidase	UM00837, UM01829	2	2	2	2	3	2	1	0	0	1	0	1
53	endogalactanase			1	0	1	1	1	1	0	0	1	1	0
54	α-L-arabinofuranosidase			1	0	1	1	1	1	0	0	0	0	0
61	β-1,4-endoglucanase			9	0	9	17	12	14	0	0	12	12	1
62	arabinoxylan arabinofuranohydrolase	UM04309	1	2	1	2	3	1	0	0	0	0	1	0
67	α-glucuronidase			1	0	1	1	1	1	0	0	0	0	0
74	xyloglucan-endoglucanase			2	0	2	1	1	1	0	0	2	1	0
78	α-rhamnosidase			8	0	8	1	3	0	0	0	0	0	2
93	exoarabinanase			2	0	2	1	2	2	0	0	0	0	0
95	α-L-fucosidase			3	0	3	1	2	0	0	0	1	0	0

Family	Polysaccharide lyases	MUMDB accession	<i>Um</i>	<i>An</i>	<i>Um</i>	<i>An</i>	<i>Mg</i>	<i>Fg</i>	<i>Nc</i>	<i>Sc</i>	<i>Sp</i>	<i>Pc</i>	<i>Cc</i>	<i>Cn</i>
1	pectin lyase pectate lyase	UM10671	1	5 3	1	8	2	6	1	0	0	0	0	0
3	pectate lyase			5	0	5	1	7	1	0	0	0	1	0
4	rhamnogalacturonan lyase			4	0	4	1	1	1	0	0	0	2	1
9	pectate lyase			1	0	1	0	1	0	0	0	0	0	0
11	rhamnogalacturonan lyase			1	0	1	0	1	0	0	0	0	0	0

Family	Carbohydrate esterases	MUMDB accession	<i>Um</i>	<i>An</i>	<i>Um</i>	<i>An</i>	<i>Mg</i>	<i>Fg</i>	<i>Nc</i>	<i>Sc</i>	<i>Sp</i>	<i>Pc</i>	<i>Cc</i>	<i>Cn</i>
1	acetyl xylan esterase feruloyl esterase unknown	UM11763	1	1 1 1	1	3	10	3	7	1	0	0	3	2
8	pectin methyl esterase	UM03516	1	3	1	3	1	3	1	0	0	1	0	0
12	rhamnogalacturonan acetyl esterase unknown			1 1	0	2	2	1	1	0	0	0	1	0

^a Accession numbers for *U. maydis* genes refer to the MipsUstilagoMaydisDataBase (<http://mips.gsf.de/genre/proj/ustilago/>)

^b Gene numbers were based on CAZy (<http://afmb.cnrs-mrs.fr/CAZY/>) except for *F. graminearum*, *C. cinereus* and *P. chrysosporium*. For these three genomes, 5 protein sequences were taken from the CAZy database for each family and blasted against the three genome sequences to determine the number of putative family members. ORFs detected in this manner were then used in a normal BLASTP against the public protein database <http://www.ncbi.nlm.nih.gov/blast> to determine whether they were indeed part of that family. This resulted in the numbers indicated in the Table.

^c Abbreviations: *Um* (*Ustilago maydis*), *An* (*Aspergillus nidulans*), *Mg* (*Magnaporthe grisea*), *Fg* (*Fusarium graminearum*), *Nc* (*Neurospora crassa*), *Sc* (*Saccharomyces cerevisiae*), *Sp* (*Schizosaccharomyces pombe*), *Pc* (*Phanerochaete chrysosporium*), *Cc* (*Coprinus cinereus*), *Cn* (*Cryptococcus neoformans*).