

Supplementary Materials: Identification and Functional Characterisation of Two Oat UDP-Glucosyltransferases Involved in Deoxynivalenol Detoxification

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AsUGT1

GCCCCAAGCTTATGGAGACTACTTCTACTGTAAGTGGAGCCGTGACTGTTACCACGTCAGC
CTCTGTTAGTCATGGAGGAGGCGGCGACGGTGGAGCCTCTGTTTTCTTCCCTCCGTTCCC
TGGTGCGCAGGGCCATACGAATCCTATGCTACAGTTCGGCCGTCGTCTGGCGTACCACGG
CCTACGTCCAACGTTGGTCGTTACCCGTTATGTCCTTTCTACGGCCGATGCACCACCAGG
AGATCCATTTTCGTGTAGCGGCGATAAGTGACGGTTTTGATGCTGGCGGCATGGCTTCCTG
CCCCGATTACGCTGATTACGTCAGTCGTATGGAGGCCGTCGGTTCAGAACTCTGCGTGA
ACTACTACTGAGTGAAGCTCGTGCGGGACGTCCCGTTAGTGCTGCTGGTGTATGATCCACA
CCTACCATGGGCCTTACCTGTAGCTCGTGAAGCAGGCGTGGCTACTGCTGCCTTTTTTCAG
CCAACCTTGTGCTGTCGATGTGATCTATGGAGAAGTTTGGGCGCGCCGATGGCTCTACC
GGCCACAGATGGGCGTGAGTTAGTCGCACGTGGAGCGCTATCAGTTGAACTTGGCCCAGA
GGATATGCCCCCTTTTGTGCTGTCCCCGAGTCTCAACCGGTGTTAACTAAAACCTCCAT
ACGTCAGTTTCGAGGGTTTGGAGGAAGCAGACGACGTCTTGGTAAATAGTTTCCGTGACTT
TGAGCCGAAGGAAGCCAAGTATATGGAGTTGACCTGGCGTGCCAAGATGGTTGGGCCTAC
TCTTCCCTCTTTCTATCTTGATGATGATCGTTTACCGTCTAATAAGTCATACGGATTTAA
TTTGTTCCTCCGTTGATGCCCCCTGTATGGACTGGCTGGAAAAACAGTCAATCTCTTCTGT
GGTACTTGTCTCATAACGGGACGGTGTCTAATTATGACACGTCTCAGCTTGAAGAGCTGGG
CAATGGTCTATGCAACTCAGGCAAGCCCTTTATATGGGTTGTTTCGTTCCAACGAAGCACA
TAAGCTAACTGAAGAACTGAAAATGAAGTGCGAAAAGATTGGCCTTATAGTCTCCTGGTG
TCCACAATTGGAGGTGCTTGCCCAAGGCAATCGGGTGCTTCGTTACCCACTGTGGCTG
GAATTCAACTCTTGAAGCGGTGCGCTCCGGGGTTCCACTGGTGGGTATTCTGATTGGGC
CGATCAGCCCACTATCTCAAAATACGTGCAAGTGTGTTGGGGAATGGGGGTCGTCCGTAA
AGGAGAAAATGGCTTTATCGGTAGCGGCGACATTGAGAGTTGCATTCTGTGAGGTGATGGA
CGGCGAGCGTAAAGATGAGTATAAGCGTAATGCGATGAAGTGGATGCAGAAAGCTAAGGA
AGCAATGCGTGAGGGGGGTAGTTCTGATATACATATAATAGAGTTTGCAGCTAAGTATAA
ATAAGCGGCGCTAAACTAT

AsUGT2

GCCCCAAGCTTATGGAAACGACCAGTACCGTTACACGTGCAGTAACAGTGACGACATCCGC
GTCTGTCTCACACGGTGGCGGAGACGGGGGAGCAAACGTCTTTTTTCTGCCATTCCCAGG
AGCGCAGGGTCATACCAACCAATGCTTCAATTTGGCCGTCGTCTAGCCTATCACGGACT
TCGTCCACCTTAGTGGTAACTCGTTATGTCCTTTCTACTGCTGATGCTCCACCTGGAGA
TCCCTTCCGTGTGGCAGCCTTTTCTGACGGCTTCGACGCAGGCGGTATGGCTAGTTGTCC
AGATTACGCCGATTATCTGTCCCGTATGGAAACAGTTGGTAGCGAGACCCTACGTGAATT
GTTATTGTCTAGAGGCGCGTGCGGGCCGTCCGGTGCGTGTGTTAGTTTACGACCCGCACTT
ACCTTGGGCCCTACCTGTGCGACGTGAGGCAGGGTTCGCGACAGCCGCTTTCTTTTCCCA
ACCATGCGCCGTAGATATCATTTACGGGGAACTTTGGGCTGGCCGTATGGCCCTGCCAGC
AACCGATGGGCGTGAAGTAGTAGCCCGTGGGGCTCTTTCCGTCGAAGTAGGGCCAGATGA
TATGCCCCCTTTTGTAGCAGTCCCAGAGTGGCAGCCGGTGTGACAAAGACGTGTATACG
TCAATTCTGAAGGTTTAGATGAAGCCGACGATGTTTTAGTAAACTCTTTTCGTGACTTCGA
GCCTAAGGAAGCGAAATATATGGAATTGAGGTGGCGTGCCAAGATGATAGGCCCTACTCT
TCCTAGTTTTTTATCTTGATGATGATCGTTTACCCTCAAATAAGTCATACGGATTTAACCT
GTTTAGCGGCGATGCGCCTTGATGGACTGGCTAGATAAGCAATCCATCTCTAGCGTTGT
GTTGGTGTCTTACGGGACTGTCTCTAATTATGATACAAGTCAACTAGAAGAATTAGGAAA

TGGCTTGTGTAACAGCGGTAAGCCATTTATCTGGGTAGTGCGTAGCAATGAGGCGCATAA
GCTGACCGAGGAATTAAAGATGAAATGCGAAAAGATCGGCCTTATTGTTAGTTGGTGCCC
CCAATTAGAGGTCTTGGCCCACAAGGCTATTGGGTGTTTTGTAACCCATTGTGGGTGGAA
CTCAACATTAGAAGCTGTAGCGTCAGGGGTACCCTTGGTTGGCATAACCCGACTGGGCAGA
CCAACCAACTATCTCTAAATACGTTGAATCTGTTTGGGATATGGGTGTGCGTGTAAAGGAA
ACGTGAAAACGGCTTTATCTGGTCACGTGACATTAAATCCTGCATACGTGAAGTAATGAA
CGGCGAGCGTAAGGACGAGTACAAACGTAATGCAATGAAATGGATGCAAAAAGCCAAAGA
AGCAATGCGTGATGGGGGCTCCTCCGATATTACATAGTAGAGTTCGCGGC AAAATACAA
G**TAA**GCGGCCGC**TAA**ACTAT

Figure S1. Sequences of oat UGT genes, codon-optimized for expression in *S. cerevisiae* (Flanking HindIII and NotI restriction enzyme sites are marked with bold script, Stop and Start codon marked with colors).

Table S1. Primers and probes used for the analysis of UGT expression in oat.

Gene	Primer/probe name	Sequence
Tubulin-alfa	Tub-a forward	GAG GTG GAA CTG GCT CTG
	Tub-a reverse	GAC ACT GTT GTA TGG CTC AAC
	Tub-a probe	/5HEX/TCA CCT CAG /ZEN/GTC TCC ACC TCT GTT /3IABkFQ/
AsUGT1	AsUGT1 forward	GTG GAT GGA ACT CAA CAT TGG AG
	AsUGT1 reverse	GGT CAG CCC AAT CTG GAA TAC
	AsUGT1 probe	/56-FAM/CCG TTG CTA /ZEN/GCG GTG TAC CTC TTG /3IABkFQ/
AsUGT2	AsUGT2 forward	GAC CAA CCC ACC ATC TCA AA
	AsUGT2 reverse	CCC ATT CAT CAC CTC TCT AAT ACA A
	AsUGT probe	/56-FAM/TTT CTC TCT /ZEN/TCC GCA CTC GCA CAC /3IABkFQ/