

- 1) Nucleotide sequence of the putative xylose reductase gene from *Chaetomium thermophilum* DSM 1495 (GenBank accession number XM_006695955.1):

ATGGCTCCCCAGATCCCCAACATTAAGCTCAGCAGCGGCTATGACATGCCCC
AGGTGGGCTTTGGACTGTGGAAGGTCGACCGCTCGATCTGCGCCGACGTCGT
CTACAACGCAATTAAGATTGGCTACCGCCTGTTTGACGGCGCTTGCGACTATG
GCAACGAAGTCGAGGCCGGCCAGGGCATTGCCCCGCGCCATCAAGGAGGGCA
TCGTGAAGCGTGAGGAGCTCTTCATCGTGTCCAAGCTCTGGAACACCTTCCAC
GACGGCGACAAGGTCGAGCCCATCGTCCGCAAGCAGCTCGCCGACTGGGGC
ATTGACTACTTCGACCTCTACCTCGTCCACTTCCCTGTCGCCCTCGAGTACGTC
GACCCCTCGGTCCGCTACCCGCCCGGCTGGTTCTACGATGGCGAGAAGGAGA
TCCGCCCCAGCAAGGCCACCATCCAGGAGACCTGGACCGCCATGGAGTCGC
TCGTTGAGAAGGGTCTGGCCCCGAGCATTGGTGTCTCCAACCTCCAGGCCCA
GCTCCTCTACGACCTGCTGCGCTACGCCAAGATCCGCCCGGCCACCCTTCAG
ATCGAGCATCACCCCTTCCTCGTCCAGCAGGAGCTGCTCAACCTGGCCAAGG
CCGAGGGCATTGCCGTGACTGCCTACAGCTCATTCGGCCCTCAGAGCTTCCTC
GAGTTCAACATGAAGCACGCCGTGCAGCTCACCCCGCTCTTCGAGGACGAGA
CCATCAAGAAGATCGCCGCCAAGTACAACCGTCCTGCTTCGCAGGTTCTCCT
GCGCTGGGCCACTCAGCGCGGTCTGGCCATTATCCCCAAGAGCACGCGCCCC
GAGATCATGAAGTCCAACCTCGAGAGCATCGAGTTCGACCTCAGCGAGGAA
GATATTGCCACCATCTCGGCCTTCGACCGCGCCTGCGCTTCAACCAGCCCA
CAAACACTTCCCCACCGAGCACCTCTGGATCTTTGGCTAA

- 2) Nucleotide sequence of the expressed xylose reductase gene from *Chaetomium thermophilum* (after codon optimization):

ATGGCTCCTCAAATACCTAATATTAAGTTATCAAGTGGTTATGATATGCCTCA
AGTTGGTTTTGGTTTATGGAAAGTAGATAGAAGTATTTGTGCTGATGTAGTTT
ATAATGCAATTAAGATAGGATATAGATTATTTGATGGAGCTTGTGATTATGGT
AATGAAGTAGAAGCAGGACAAGGTATAGCTAGAGCAATAAAAGAAGGTATT
GTAAAGAGAGAAGAATTATTTATTGTTTCTAAGTTATGGAATACTTTTCATGA
TGGAGATAAGGTAGAACCAATTGTTAGAAAGCAATTAGCTGATTGGGGTATT
GATTATTTTGATTTATATTTAGTACATTTTCCAGTTGCATTAGAATATGTAGAT
CCTTCAGTTAGATATCCACCTGGATGGTTTTATGATGGTGAAAAGGAAATAA
GACCTAGTAAGGCTACAATACAAGAACTTGGACAGCAATGGAATCTTTAGT
AGAAAAGGGATTAGCTAGAAGTATAGGTGTTTCTAATTTTCAAGCACAAATTA
TTATATGATTTATTAAGATATGCTAAGATAAGACCAGCAACTTTACAAATAG
AACATCATCCATTTTATAGTACAACAAGAATTATTAATTTAGCTAAAGCAGA
AGGAATAGCTGTTACAGCATATTCTTCATTTGGTCCACAATCATTTTTAGAAT
TTAATATGAAGCATGCTGTACAATTAACCTCTTTATTTGAAGATGAAACAATA
AAGAAAATAGCTGCAAAGTATAATAGACCAGCTTCACAAGTTTTATTAAGAT
GGGCTACTCAAAGAGGATTAGCAATAATTCCAAAGAGTACAAGACCTGAAA
TAATGAAGTCAAATTTAGAAAGTATAGAATTTGATTTATCTGAAGAAGATAT
TGCTACTATATCAGCATTGATAGAGGTTTAAGATTTAATCAACCTACTAATT

ATTTTCCTACAGAACATTTATGGATATTTGGACTCGAGCACCACCACCACCAC
CACTGA

3) Amino acid sequence of the expressed xylose reductase gene from *Chaetomium thermophilum*:

Met APQIPNIKLSGGYDMet PQVGFGLWKVDRSICADVYNAI
KIGYRLFDGACDYGNEVEAGQGIARAIKEGIVKREELFIVS
KLWNTFHDGDKVEPIVRKQLADWGIDYFDLYLVHFPVALE
YVDPSVRYPPGWFYDGEKEIRPSKATIQETWTA Met ESLVEK
GLARSIGVSNFQAQLLYDLLRYAKIRPATLQIEHHPFLVQQ
ELLNLAKAEGIAVTAYSSFGPQSFLFN Met KHAVQLTPLFE
DETIKKIAAKYNRPASQVLLRWATQRGLAIIPKSTRPEIMet K
SNLESIEFDLSEEDIATISAFDRGLRFNQPTNYFPTEHLWIFG
LEHHHHHH Stop

4) pH optimum in alternative buffer systems

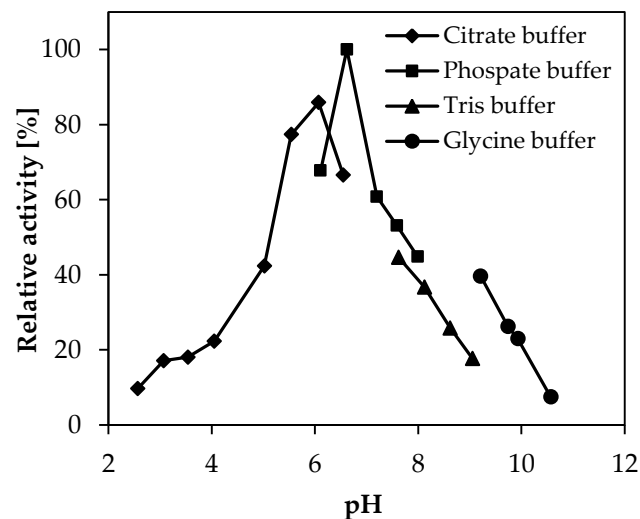


Figure S1: Xylose reductase activity at different pH values in alternative buffer systems. Measurements were taken at 30 °C in a set of different 50 mM buffers covering a pH range from 2.5 to 10.5 in steps of 0.5 pH units: ◆ citrate (2.5 – 6.5), ■ phosphate (6.0 – 8.0), ▲ tris (7.5 – 9.0) and ● glycine (9.0 – 10.5). NADPH was used as cofactor and D-xylose as substrate.