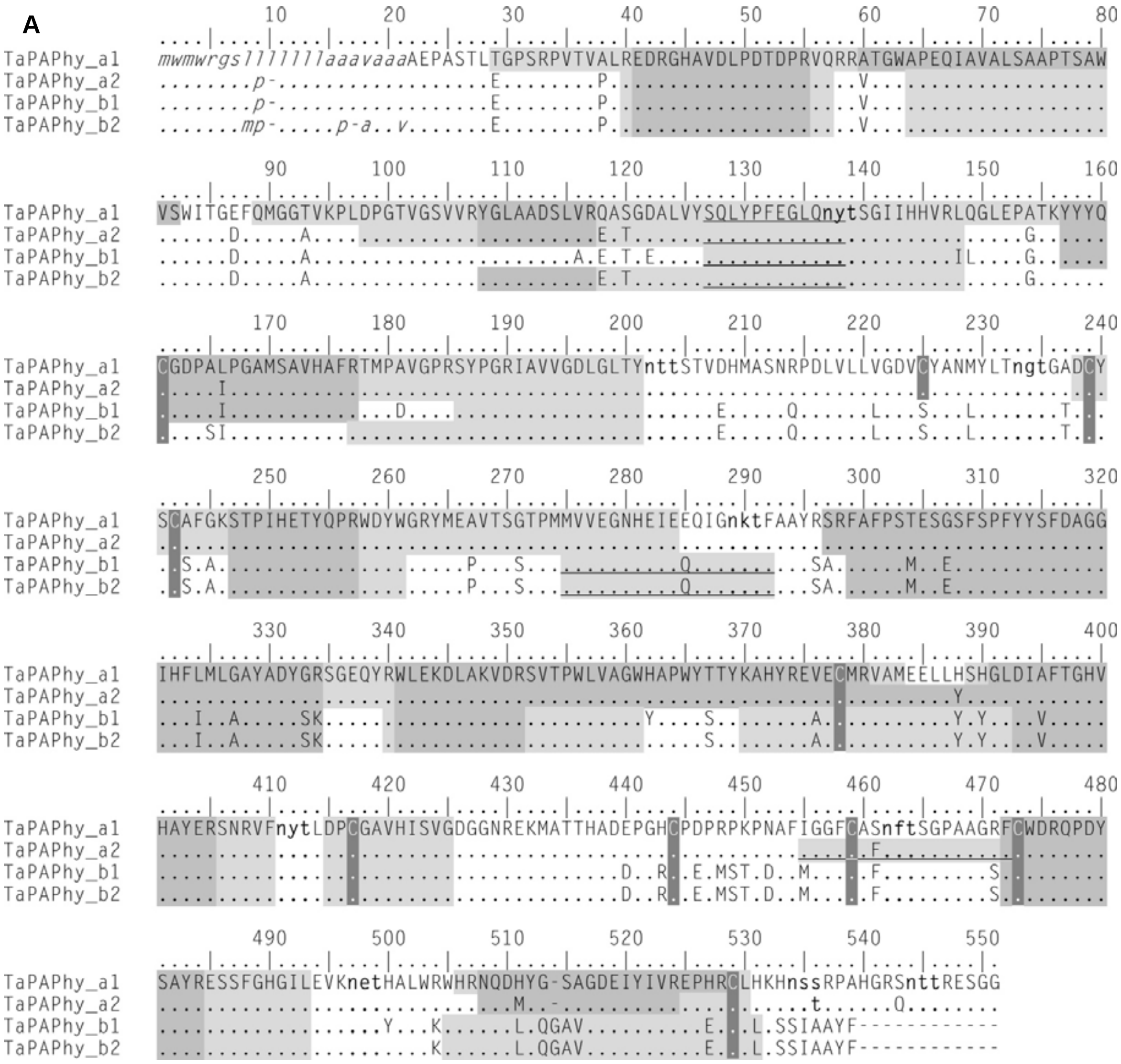

A

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                   10        20        30        40        50        60        70        80
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
TaPAPhy_a1 mwmwrgslllllllaaavaaaAEPASTLTGPSRPVTVALREDRGHAVDLPDTDPRVQRRATGWAPEQIAVALSAAPTSAW
TaPAPhy_a2 ........p-..................E........P.....................V....................
TaPAPhy_b1 ........p-..................E........P.....................V....................
TaPAPhy_b2 .......mp-.....p-a..v.......E........P.....................V....................

                   90       100       110       120       130       140       150       160
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
TaPAPhy_a1 VSWITGEFQMGGTVKPLDPGTVGSVVRYGLAADSLVRQASGDALVYSQLYPFEGLQnytSGIIHHVRLQGLEPATKYYYQ
TaPAPhy_a2 ......D.....A........................E.T.................................G......
TaPAPhy_b1 ......D.....A......................A.E.T.E.........................IL....G......
TaPAPhy_b2 ......D.....A........................E.T.................................G......

                  170       180       190       200       210       220       230       240
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
TaPAPhy_a1 CGDPALPGAMSAVHAFRTMPAVGPRSYPGRIAVVGDLGLTYnttSTVDHMASNRPDLVLLVGDVCYANMYLTngtGADCY
TaPAPhy_a2 .....I..........................................................................
TaPAPhy_b1 .....I..............D..........................E.....Q......L...S...L.......T...
TaPAPhy_b2 ....SI.........................................E.....Q......L...S...L.......T...

                  250       260       270       280       290       300       310       320
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
TaPAPhy_a1 SCAFGKSTPIHETYQPRWDYWGRYMEAVTSGTPMMVVEGNHEIEEQIGnktFAAYRSRFAFPSTESGSFSPFYYSFDAGG
TaPAPhy_a2 ................................................................................
TaPAPhy_b1 ..S.A.....................P...S.............Q..........SA......M..E.............
TaPAPhy_b2 ..S.A.....................P...S.............Q..........SA......M..E.............

                  330       340       350       360       370       380       390       400
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
TaPAPhy_a1 IHFLMLGAYADYGRSGEQYRWLEKDLAKVDRSVTPWLVAGWHAPWYTTYKAHYREVECMRVAMEELLHSHGLDIAFTGHV
TaPAPhy_a2 ...................................................................Y............
TaPAPhy_b1 ...I..A.....SK...........................Y....S........A...........Y.Y....V.....
TaPAPhy_b2 ...I..A.....SK................................S........A...........Y.Y....V.....

                  410       420       430       440       450       460       470       480
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|....|
TaPAPhy_a1 HAYERSNRVFnytLDPCGAVHISVGDGGNREKMATTHADEPGHCPDPRPKPNAFIGGFCASnftSGPAAGRFCWDRQPDY
TaPAPhy_a2 ............................................................F...................
TaPAPhy_b1 .......................................D..R..E.MST.D..M.....F.........S.........
TaPAPhy_b2 .......................................D..R..E.MST.D..M.....F.........S.........

                  490       500       510       520       530       540       550
           ....|....|....|....|....|....|....|....|....|....|....|....|....|....|.
TaPAPhy_a1 SAYRESSFGHGILEVKnetHALWRWHRNQDHYG-SAGDEIYIVREPHRCLHKHnssRPAHGRSnttRESGG
TaPAPhy_a2 ..............................M..-.....................t......Q........
TaPAPhy_b1 ...................Y...K......L.QGAV..........E...L.SSIAAYF------------
TaPAPhy_b2 .......................K......L.QGAV..........E...L.SSIAAYF------------
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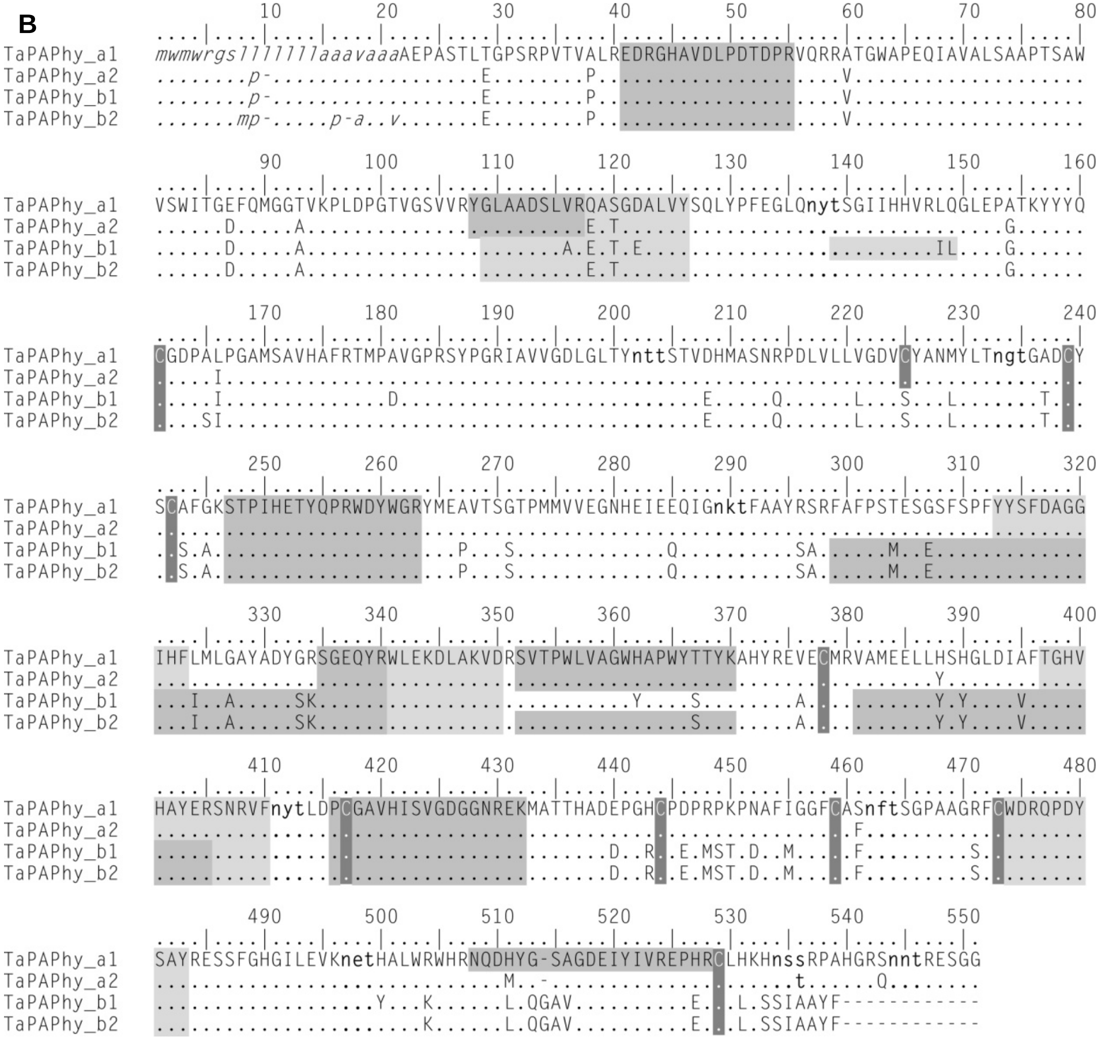

**Supplemental Figure S5.** Peptide mapping of phytases purified from wheat bran (A) and from wheat grains germinated for six days (B). Observed tryptic peptides have light grey background and chymotryptic peptides have dark background. Underscored peptides were identified in samples deglycosylated with PenGase F.