Cell Wall Purification - Cell wall purification and protein extraction were carried out as described by Feiz et al. (2006) and Kong et al. (2010) with some modifications. All purification and extraction methods were undertaken at 4^{o}C. A portion (4 g) of roots and hypocotyls was collected and ground in a mortar and pestle. The ground tissue was homogenized in 125 mL of 5 mM acetate buffer (pH 4.6) containing 0.4 M sucrose and 1 mM phenylmethyl sulfonyl fluoride (PMSF). After the addition of 0.4 g polyvinyl polypyrrolidone (PVP), the mixture was incubated for 30 min with constant stirring. The cell walls were separated from the soluble cytoplasmic fluid by centrifugation of the homogenate at 1,000 x g for 15 min. The pellet was suspended in 125 mL of 5 mM acetate buffer (pH 4.6) containing 0.6 M sucrose and centrifuged at 1,000 x g for 15 min. The pellet was re-suspended in 125 mL of 5 mM acetate buffer (pH 4.6) containing 1 M sucrose and centrifuged twice at 1,000 x g for 15 min each. The residue was then washed excessively with 750 mL of 5 mM acetate buffer (pH 4.6) with one layer of Miracloth (Merck, Darmstadt, Germany). The purified cell wall was extracted twice in 3 mL of 5 mM acetate buffer (pH 4.6) containing 0.2 M $CaCl_2$ and 1 mM PMSF. The cell wall was re-suspended by vortexing for 5 min and centrifuged at 4,000 x g for 15 min. The $CaCl_2$-extracted cell wall proteins were dialyzed against deionized water overnight at 4^{o}C.

Cell Wall Purity Measurement - The glucose-6-phosphate dehydrogenase (G6PDH) activity was assayed as described by Honjoh et al. (2003) with minor modifications. Briefly, the reaction was started by adding 100 µL protein solution to 2.9 mL of assay solution containing 55 mM Tris-HCl (pH 8.0), 3.3 mM $MgCl_2$, 0.2 mM NADP and 3.3 mM G6P. NADP reduction was monitored by the increase in absorbance at 340 nm in a double-beam recording spectrophotometer. One unit of G6PDH activity is defined as 1 µmol NADPH turnover per min at 25°C. Please see the publication (Komatsu et al., 2010) for the purity used in this database.

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