



**Figure S5.** Phylogenetic relationships among PeAPY1, PeAPY2 and other representative APY proteins from different plant species. Apyrases in different species are indicated as follows: PeAPY1, PeAPY2, *Populus euphratica*; StAPY1, StAPY2, *Solanum tuberosum*; AtAPY1 and AtAPY2, *Arabidopsis thaliana*; PtAPY1, PtAPY2, *Populus trichocarpa*; NtAPY1, NtAPY2, *Nicotiana tabacum*; OsAPY1, OsAPY2, *Oryza sativa*. The phylogenetic trees were constructed via Neighbor-joining program of MEGA 5.2 software. Bootstrap values of 1000 replicates are shown at the nodes. The accession numbers of the APY sequences are provided in Supplementary Table S1.