



**Figure 1—figure supplement 1. Fractionation and characterization of the supercomplex samples from the *O. tauri* cells grown in the low light ( $50 \mu\text{mol photon m}^{-2}\text{s}^{-1}$ ).** **a**, UV-VIS absorption spectra. Each fraction ( $3 \mu\text{g Chl/mL}$ ) was measured at room temperature at least three times and the representative spectra are shown. **b**, SDS-PAGE analysis of each fraction ( $1 \mu\text{g Chl/mL}$ ) stained with Coomassie Brilliant Blue R-250. M, molecular weight marker. Red dots, PSI subunits; black open circles, PSII subunits; black rectangles, Lhcps; red squares, Lhcas; red square with \*, band 1; red square with \*\*, band 2. Polypeptides detected in bands 1 and 2 are listed in Supplementary file 1b. The experiment was repeated three times independently with similar results. **c**. Pigment analysis of the A3L fraction by UPLC. The chromatogram was recorded at 440 nm. Each peak was identified by using a corresponding standard or based on absorption spectrum measured by a photo-diode array equipped in the UPLC system. Asterisks indicate the pigments identified by absorption spectra.