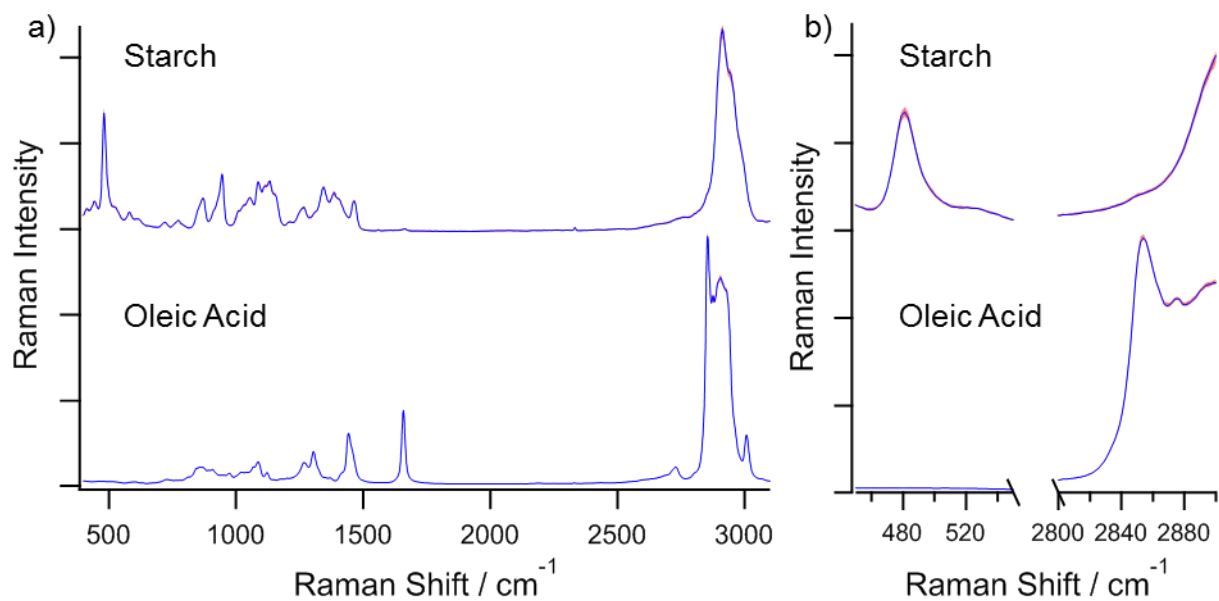
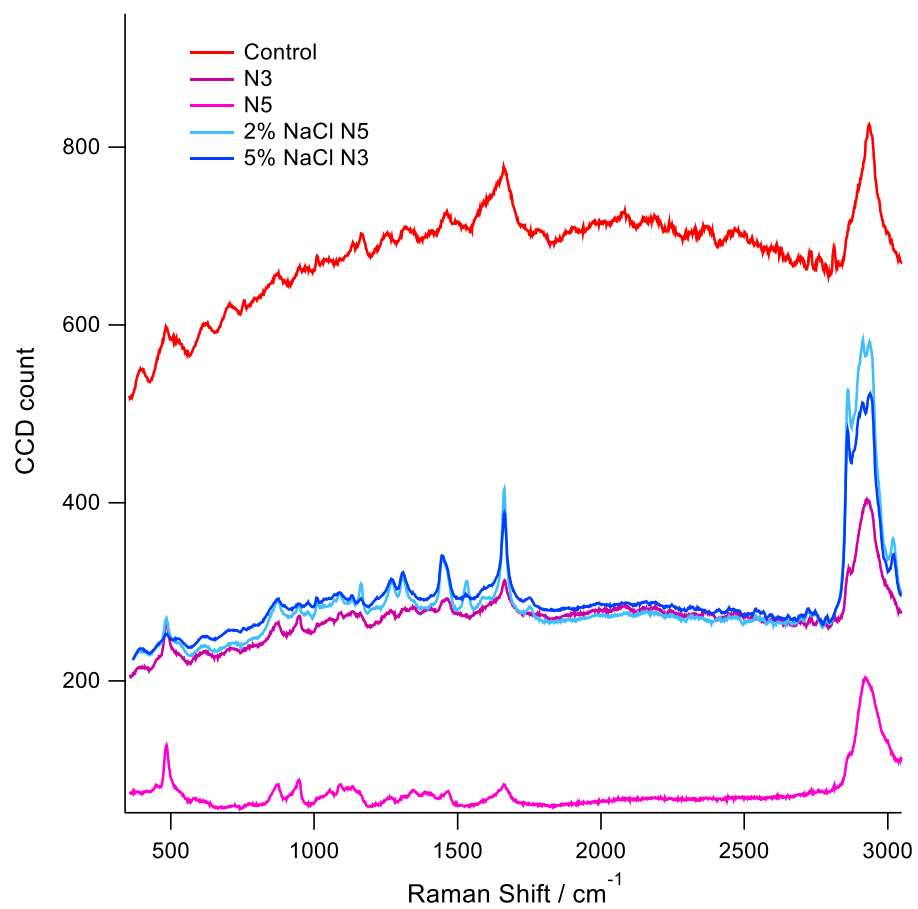
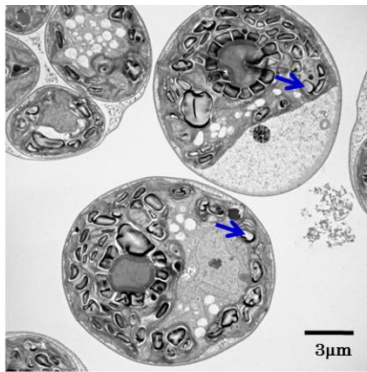




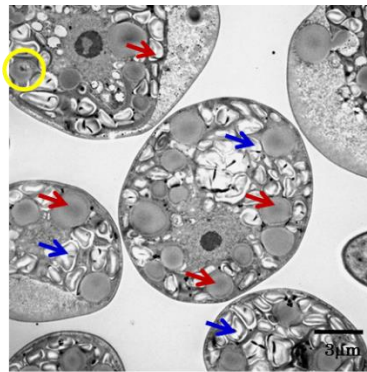
Sup. 1. The averaged spectra (blue line) and their standard deviation (red area alongside the spectra) of 36 time-lapse measurements of standard starch and oleic acid samples over 6 hours. a) The whole range starch and oleic spectra. b) The close-up display of the 479 cm^{-1} marker band for carbohydrates and 2850 cm^{-1} marker band for lipids (fatty acids) in a).



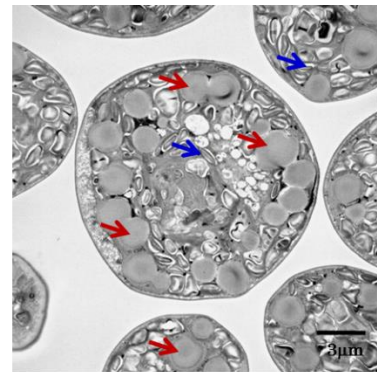
Sup. 2. The raw data without fluorescence background subtraction calculations for the data shown in Fig. 2. Notice that the y axis for all 5 spectra are the absolute CCD count in this figure. No offsets or magnifications are applied in the y axes of the 5 displayed spectra, which is different from the case in Fig. 2.



Control (N-rich) condition
Low starch, Low lipids



N-depletion condition
High starch, Middle lipids



Salt + N-depletion condition
Middle starch, High lipids

Sup. 3. The energy storage compound of algal cells shifted from starch to lipid upon salinity stress through TEM micrographs (Blue arrow- starch granule; Red arrow- oil drops). The yellow circle highlights the structure that seems to be a lipid droplet engulfed starch granule.