



**Figure S1.** The results of the hierarchical clustering analysis are presented as a heatmap, employing the Euclidean distance metric and Ward's linkage method for the clustering algorithm. The heatmap illustrates the relationships and patterns among different metabolites extracted from six algae species (*Tetraselmis*, local algae, *Nannochloropsis*, *Chlorella vulgaris*, *Spirulina*, and *Isochrysis*).