Tracking ingest glycine via labelledisotope and metabolomics to show mixotrophy in *Chromeravelia,* an apicomplexan cousin

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Chromera velia is alveolate alga associated to corals. The importance of this alga is caused by its unique phylogenetic position showing *C. velia* as photosynthetic organism which is the most closely related to parasitic phylum Apicomplexa.The easy and rapid culturing of *C. velia*makes this alga great model for studying elementary biochemical principals and helps to understand the evolutionary shift from photosynthesis to parasitism. The means of liquid and gas chromatography and mass spectrometry were used to reveal an essence of mixotrophy in *C. velia.* Chemical analytical techniques were used for tracking the catabolism of glycine – 1 -^{13}C. The methodologydescribing theratio of ^{13}C incorporation to final metabolic products was proposed and the speed of labelled glycine consumption and fade of ^{13}Cwere investigated. The catabolic biochemical pathway based on Kegg database was proposed and particular genes coding for the involved enzymes were searched by BLAST. Then the analyses were focused on chlorophyll*a*, free fatty acids, lipids and monosaccharides. The experiment shows that labelled glycine was almost catabolized during 15 hours after administration. The primary targets of ^{13}C were other amino acids and lipids, where artificial ^{13}Cappeared within 7 hours after administration. Incorporation of ^{13}C to the chlorophyll*a* was significantly recorded after 48 hours. Detail investigation revealed no presence of the artificial ^{13}Catoms in monosaccharides. This work was supported by Czech Science Foundation (P501-12-G055).