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HIGHLIGHTS

- *Parachlorella* cells, starved by medium depletion, ceased growth and division.
- During starvation, chlorophyll was degraded and starch content decreased.
- During starvation, storage lipids, but not other cellular lipids, were overproduced.
- Starch was not used for storage lipid synthesis, whereas cellular lipids were.
- Algae that were transferred to complete medium recovered growth and cell division.