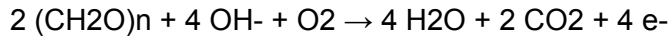


Glucose as a catalyst for “proto-respiration”

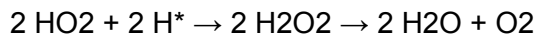
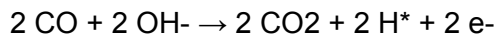
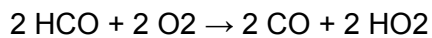
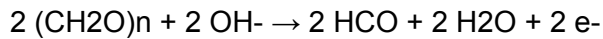
One thing glucose is really good at is reacting with hydroxyl radicals. These form from hydroxide ions stored in protoplasm gel, hydrated potassium hydroxide. Glucose may be a catalyst for proto-respiration, tipping water-oxygen redox balance in favour of degradation of water.

The anode reaction,

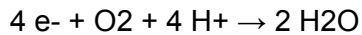


Glucose, $(\text{CH}_2\text{O})_6$, catalyses the release of 12 electrons.

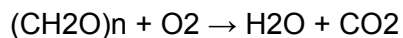
Steps in anode reaction,



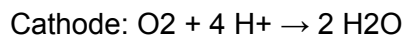
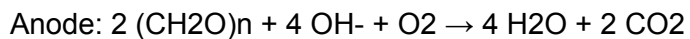
The missing O_2 in the reaction comes in at the cathode,



Overall reaction:



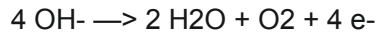
Steps in overall reaction:



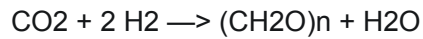
“Proto-respiration” as a catalyst for photosynthesis

In photosynthesis the process is reversed.

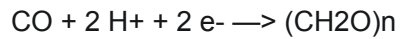
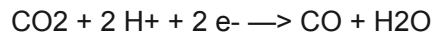
Anode in photosynthesis:



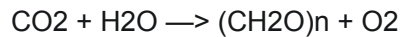
Cathode:



Steps in cathode reaction:



Overall reaction:



Steps in overall reaction:

