

## Abstract

The effects of reactive oxygen species (ROS) on  $\alpha$ -tocopherol production in mitochondria and chloroplasts of *Euglena gracilis* were investigated. Addition of an organic carbon source to the medium resulted in increased mitochondrial activity, intracellular O<sub>2</sub> - concentration and  $\alpha$ -tocopherol productivity in *E. gracilis* W14ZUL (a chloroplast deficient mutant).  $\alpha$ -Tocopherol productivity of the wild-type strain (with both mitochondria and chloroplast) was higher than that of the W14ZUL strain. In the case of the wild strain, the O<sub>2</sub> - generated in chloroplasts was efficiently scavenged by the  $\alpha$ -tocopherol synthesized inside the chloroplast. In photoheterotrophic culture (with an organic carbon source), there was a positive correlation between  $\alpha$ -tocopherol production and O<sub>2</sub> - generation. Addition of 3-(3,4-dichlorophenyl)-1,1-dimethylurea (an inhibitor of photosynthesis) resulted in increased O<sub>2</sub> - generation and  $\alpha$ -tocopherol productivity. These results indicate that the ROS generated in mitochondria and chloroplasts play important roles in  $\alpha$ -tocopherol production by *E. gracilis*. The presence of chloroplasts and generation of intracellular ROS are important for efficient production of  $\alpha$ -tocopherol.

Do you want to **read the rest** of this article?

Request full-text

*Effects of reactive oxygen species on  $\alpha$ -tocopherol production in mitochondria and chloroplasts of *Euglena gracilis* | Request PDF.* Available from:

[https://www.researchgate.net/publication/225257308\\_Effects\\_of\\_reactive\\_oxygen\\_species\\_on\\_a-tocopherol\\_production\\_in\\_mitochondria\\_and\\_chloroplasts\\_of\\_Euglena\\_gracilis](https://www.researchgate.net/publication/225257308_Effects_of_reactive_oxygen_species_on_a-tocopherol_production_in_mitochondria_and_chloroplasts_of_Euglena_gracilis)