# The moving chloroplast

Hyogo prefectural Kobe high school Science course Grade 1

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#### Introduction

It is well known that chloroplasts move depending on the brightness of light.

Under strong light the chloroplast avoids the light and moves towards the sides of the cell. And under weak light, the chloroplast moves towards the bright areas of the cell. This movement is called light-induced chloroplast movement. In previous studies, it was said to happen most under blue or red light.

## Purpose

We were interested if this movement also occurs in the chloroplast in moss, which only grows in dark areas.

### Condition

a) $\sim$ e)We shone the following light on the slide.

	Color of light	Brightness (Ix)
a)	Red	5080
b)	Blue	5080
c)	Green	5330
d)	White	5320
e)	White (strong)	21160

%In order to study the difference by the color of the light, we set the light to have similar brightness.

#### Materials and methods

- 1. We collected some moss from a shady place.
- We used a white LED light and red, green, and blue filters to change the color of the light.
- We shone the light on the slide like the picture below (We used the leaves of the moss for our experiment).
- Every 5 minutes, we used a microscope and checked if the chloroplast moved.



Shady places: 2667 lx

Light places:106900 lx

Where we collected the moss:1445  $\mbox{Ix}$ 

### References

「葉緑体光定位運動.加川貴俊.2010」

http://photosyn.jp/pwiki/index.php?「葉緑体光定位運動.2015」 「陸上植物の光応答戦略.末次憲之・和田正三.九州大学大学院.理 学研究院.生物科学部門 2013」



We couldn't see any differences between the white, red, blue and green lights.

The results proved that light-induced chloroplast movement occurred less in the moss than in Brazillian waterweed.

We assumed that this is because moss grows in shady places.

