

PRE-CONCEPTEN

"Leerlingen denken dat Chlorofyl bladgroen bevat"

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Inhoud

- Introductie misconception 'bladgroen'
- Oorsprong van dit misconception
- Inhoud les 'chloroplasten'
- Advies voor onze biologielessen
- Literatuurlijst



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Chlorofyl

Chlorofyl of **bladgroen** is het biologisch pigment in de mesosomen van cyanobacteriën en in chloroplasten van de cellen van bladeren.

Waar komt dit misconception vandaan?

- In veel populaire literatuur worden de woorden chloroplast, chlorofyl, bladgroen en bladgroenkorrel als synoniemen gebruikt. Leerlingen nemen dit gebruik over.
- 'Bladgroen' als woord wijst naar een kleur. (groen) Leerlingen weten dat chlorofyl groen is dus is het voor hen een logische redenering dat chlorofyl bladgroen moet bevatten.

Toelichting bij achtergrond woord
"bladgroen": Chlorophyll is een letterlijke
vertaling naar bladgroen/leaf green vanuit
het Grieks!

χλωρός, *khloros* ("pale green")
and φύλλον, *phyllon* ("leaf").

Inhoud les

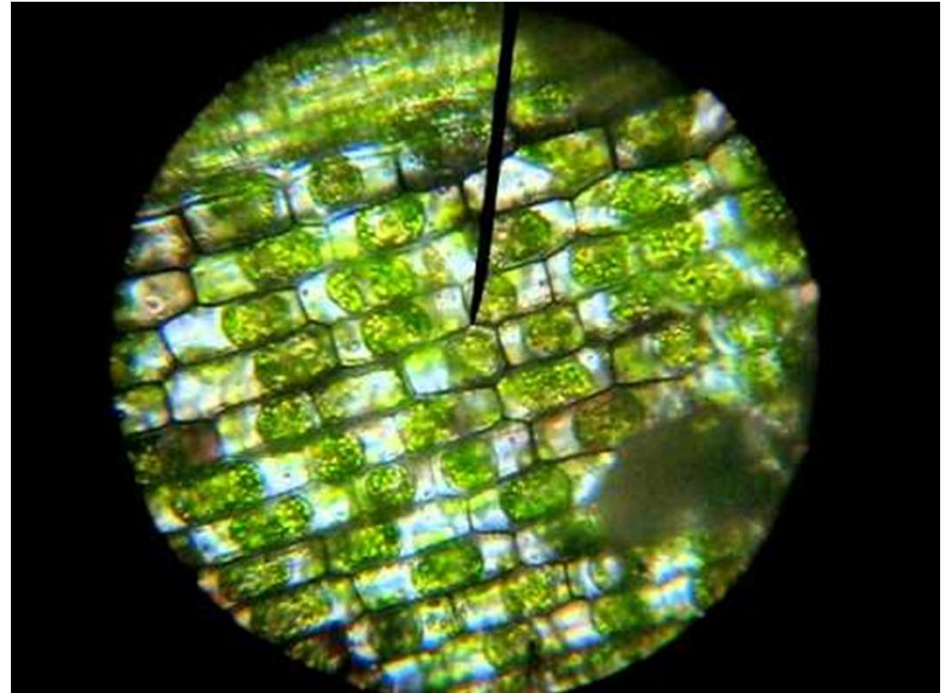
- Lesintroductie: meerdere kleuren bladeren meenemen
- Microscopiepracticum → groene paprika & rode paprika

Paprika Microscop

- Rode paprikacellen onder de lichtmicroscop:





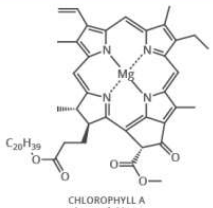
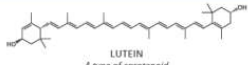
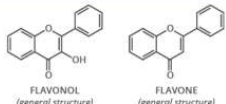
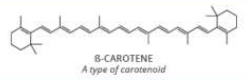
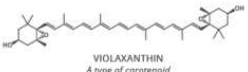
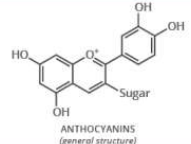
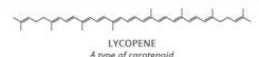


- Groene paprikacellen




Alle onderstaande kleuren zijn 'bladgroen' ☹️

THE CHEMISTRY OF AUTUMN LEAF COLOURS

CHLOROPHYLL	CAROTENOIDS & FLAVONOIDS	CAROTENOIDS	ANTHOCYANINS & CAROTENOIDS
			
 CHLOROPHYLL A <i>A type of chlorin</i>	 LUTEIN <i>A type of carotenoid</i> <p>Carotenoids and flavonoid pigments are always present in leaves, but as chlorophyll is broken down in the autumn their colours come to the fore. Xanthophylls, a subclass of carotenoids, are responsible for the yellows of autumn leaves. One of the major xanthophylls, lutein, is also the compound that contributes towards the yellow colour of egg yolks.</p>  FLAVONOL <i>(general structure)</i> FLAVONE <i>(general structure)</i>	 B-CAROTENE <i>A type of carotenoid</i> <p>Carotenoids also contribute orange colours. Beta-carotene is one of the most common carotenoids in plants, and absorbs green and blue light strongly, reflecting red and yellow light and causing its orange appearance. It is also responsible for the orange colouration of carrots. Carotenoids in leaves start degrading at the same time as chlorophyll, but they do so at a much slower rate; some fallen leaves can still contain measurable amounts.</p>  VIOLEXANTHIN <i>A type of carotenoid</i>	 ANTHOCYANINS <i>(general structure)</i> <p>Anthocyanin synthesis is kick-started by the onset of autumn. As sugar concentration in the leaves increases, sunlight initiates anthocyanin production. The purpose they serve isn't clear; it is suggested that they may play a light-protective role. It was previously thought they might delay leaf fall, but this has been discounted.</p>  LYCOPENE <i>A type of carotenoid</i>

Chlorophyll gives plant leaves their green colour. Plants require warm temperatures and sunlight to produce chlorophyll. In autumn, the amount produced begins to decrease, and existing chlorophyll is slowly broken down, diminishing the green colour of the leaves.

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ADVIES

- Dus praat in de onderbouw les niet over bladgroen maar over bladkleur!
- Alleen door zelf als docent voortdurend de vaktaal correct te gebruiken is het mogelijk het gebruik van verkeerde synoniemen bij leerlingen te voorkomen.
 - Chloroplast
 - Chlorofyl
 - Chromoplasten
 - Leukoplasten
 - Fotosynthetische pigmenten
 - Bladgroen en Bladgroenkorrel

Literatuurlijst

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