

ECOTOXICOLOGIA

AULA TP 4



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PLANEAMENTO DAS AULAS

AULA 1 – INTRODUÇÃO AOS TESTES DE ECOTOXICOLOGIA. BIOMARCADORES E DELINEAMENTO EXPERIMENTAL

AULA 2 – EFEITOS DO GLIFOSATO NO CRESCIMENTO DOS ORGANISMOS TESTE (TAXAS DE INIBIÇÃO E CONSTANTES DE INIBIÇÃO IC50). MARCADORES BIOFÍSICOS DE TOXICIDADE I

AULA 3 – MARCADORES BIOFÍSICOS DE TOXICIDADE II

AULA 4 – MARCADORES BIOQUÍMICOS DE TOXICIDADE I – PIGMENTOS VEGETAIS

AULA 5 – MARCADORES BIOQUÍMICOS DE TOXICIDADE II – PIGMENTOS VEGETAIS II

AULA 6 - MARCADORES BIOQUÍMICOS DE TOXICIDADE III – DANO MEMBRANAR

AULA 7 – MARCADORES BIOQUÍMICOS DE TOXICIDADE IV – DANO MEMBRANAR E ÁCIDOS GORDOS

AULA 8 - MARCADORES BIOQUÍMICOS DE TOXICIDADE III – SOD

AULA 9 – TÉCNICAS DE EXTRAÇÃO E ANÁLISE DE METAIS PESADOS

AULA 10 - NANOTOXICOLOGIA

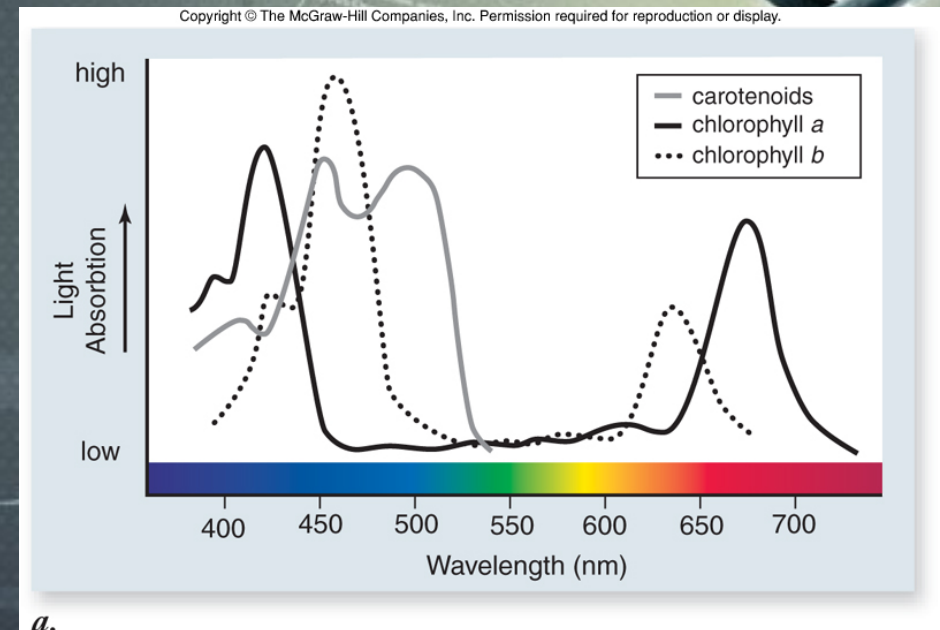
PLANT PIGMENTS

PIGMENTS ARE LIGHT-ABSORBING COLORED MOLECULES.

DIFFERENT PIGMENTS ABSORB DIFFERENT WAVELENGTHS OF LIGHT.

CHLOROPHYLLS ARE THE MAJOR LIGHT-ABSORBING PIGMENTS IN PLANTS.

THEY ABSORB ENERGY FROM VIOLET-BLUE LIGHT AND REFLECT GREEN LIGHT, GIVING PLANTS THEIR GREEN COLOR.



ACCESSORY PLANT PIGMENTS

ROLE OF ACCESSORY PIGMENTS:

ACCESSORY PIGMENTS HELP PLANTS ABSORB ADDITIONAL LIGHT. PLANTS NEED TO MAKE THESE ACCESSORY PIGMENTS TO MAXIMIZE THE AMOUNT OF PHOTOSYNTHESIS THEY CAN DO.

MORE PIGMENTS = MORE GLUCOSE OR FOOD FOR THE PLANT!

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Chemically, DNA consists of two complementary strands of simple units called nucleotides. Each nucleotide is composed of a phosphate group, a five-carbon sugar, and a nitrogenous base. The phosphate group and the sugar are bonded together, and the sugar is bonded to the nitrogenous base. The two strands are bonded to each other by the nitrogenous bases, which are paired in a specific way. This pairing is called base pairing. The sequence of these base pairs is the genetic information. This information is used to synthesize proteins, which are the building blocks of life.

When cells, DNA is organized into long molecules called chromosomes. These chromosomes are duplicated before cells divide. In a process called cell replication, eukaryotic organisms undergo several divisions, and prokaryotic organisms undergo binary fission. In both cases, the DNA is replicated and passed on to the next generation.

ACCESSORY PLANT PIGMENTS

CAROTENOIDS: REFLECT YELLOW, ORANGE, AND RED LIGHT.

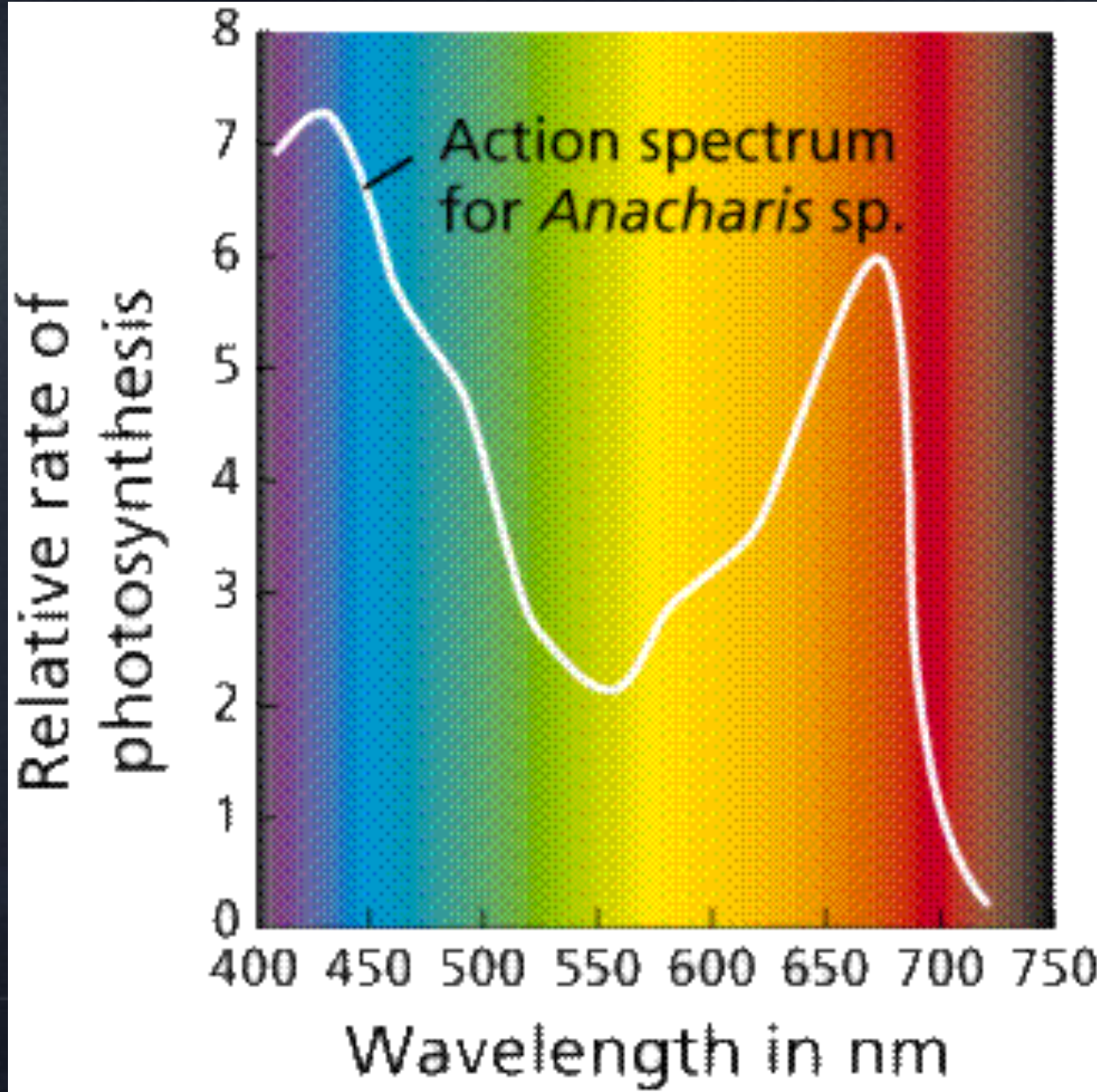
CAROTENOIDS GIVE CARROTS AND SWEET POTATOES THEIR ORANGE COLOR.

ANTHOCYANS: REFLECT RED, BLUE, VIOLET LIGHT.

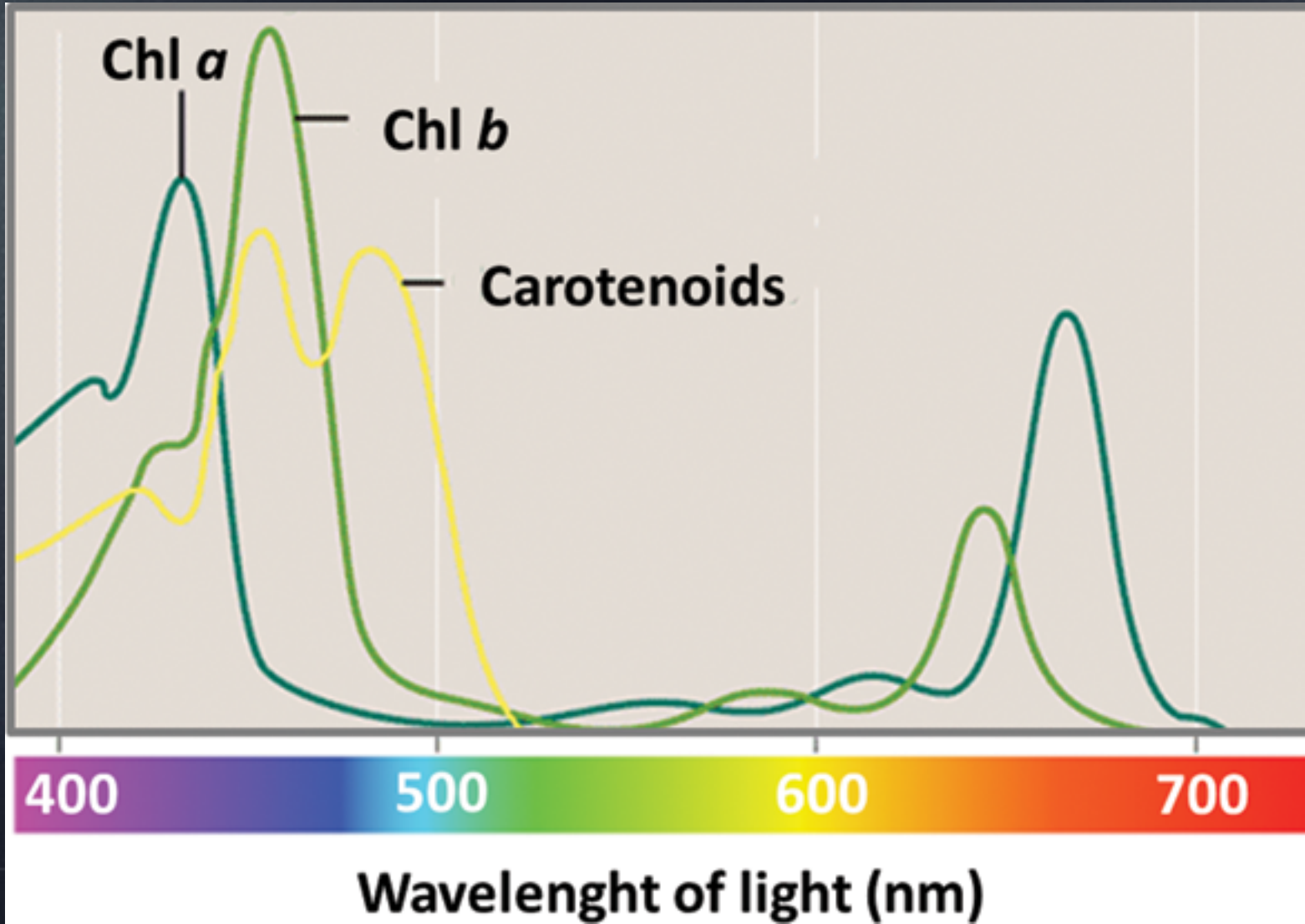
XANTHOPHYLLS: REFLECT YELLOW LIGHT.

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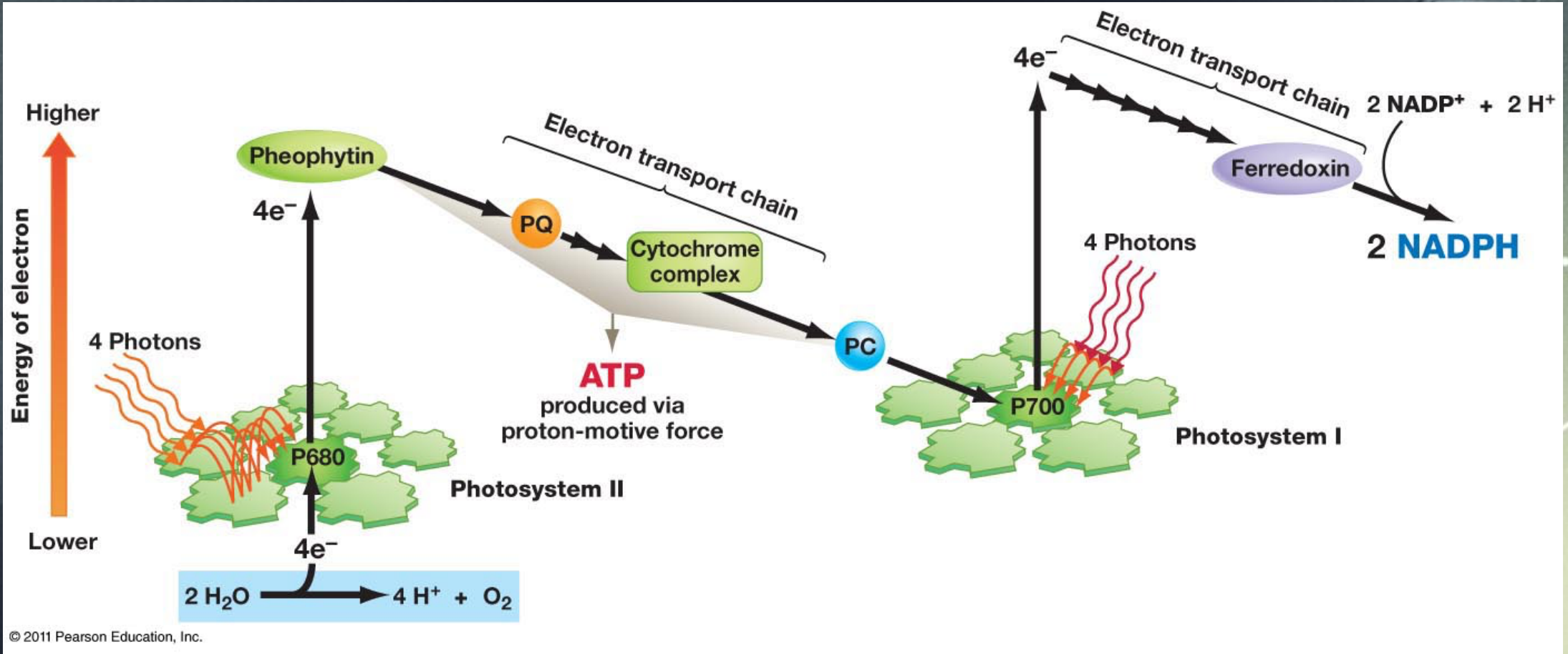
PLANT PIGMENTS



PLANT PIGMENTS



PLANT PIGMENTS



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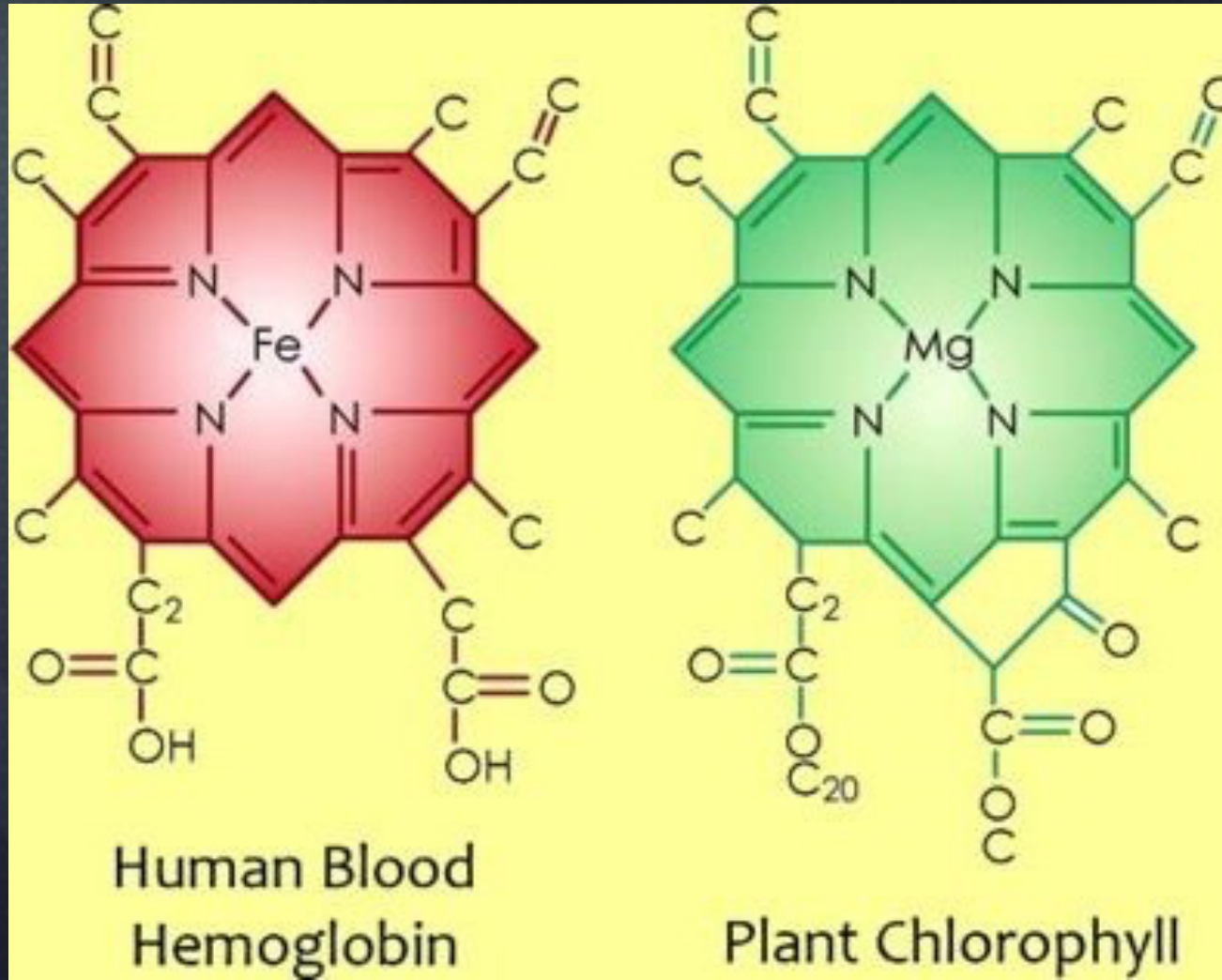
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the sequence of these base pairs is the genetic code that provides information. This information is used using the genetic code to synthesize proteins of the protein cells within genome. The process of copying these base pairs of DNA into the messenger RNA is a process called transcription.

Within cells, DNA is organized into very dense structures called chromosomes. These chromosomes are duplicated before cells divide. In a process called cell replication, eukaryotic organisms produce many copies of their DNA and produce other copies of their DNA in their cell nuclei and some of their DNA is organized into mitochondria or chloroplasts.



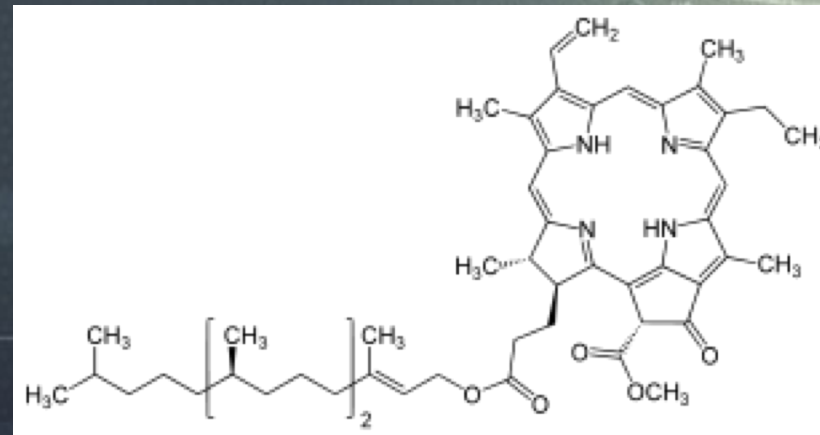
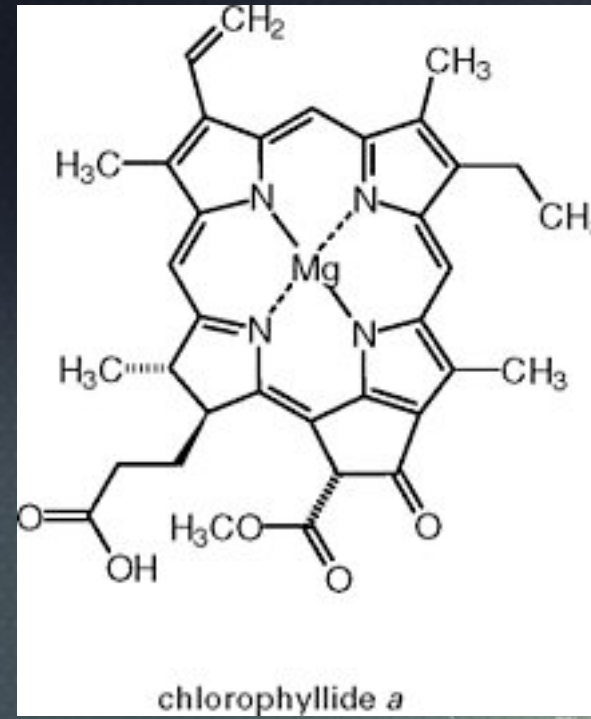
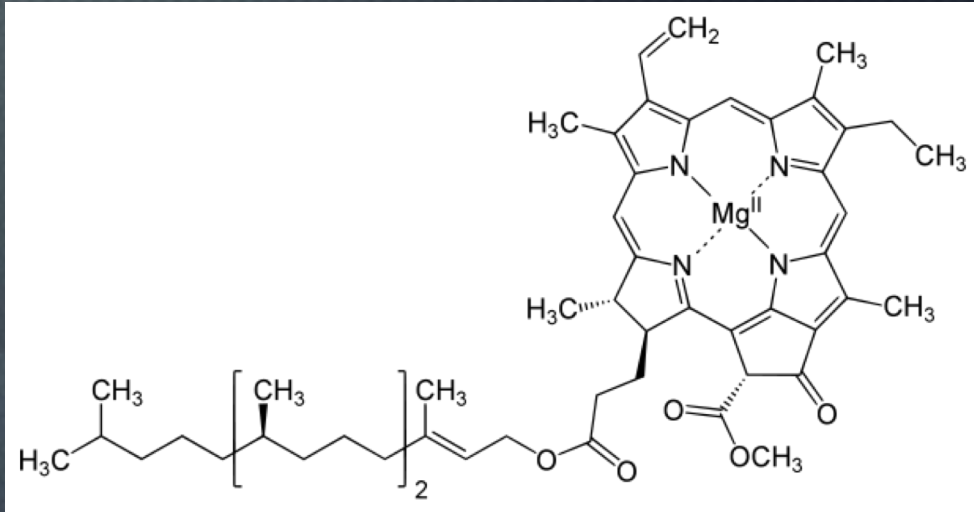
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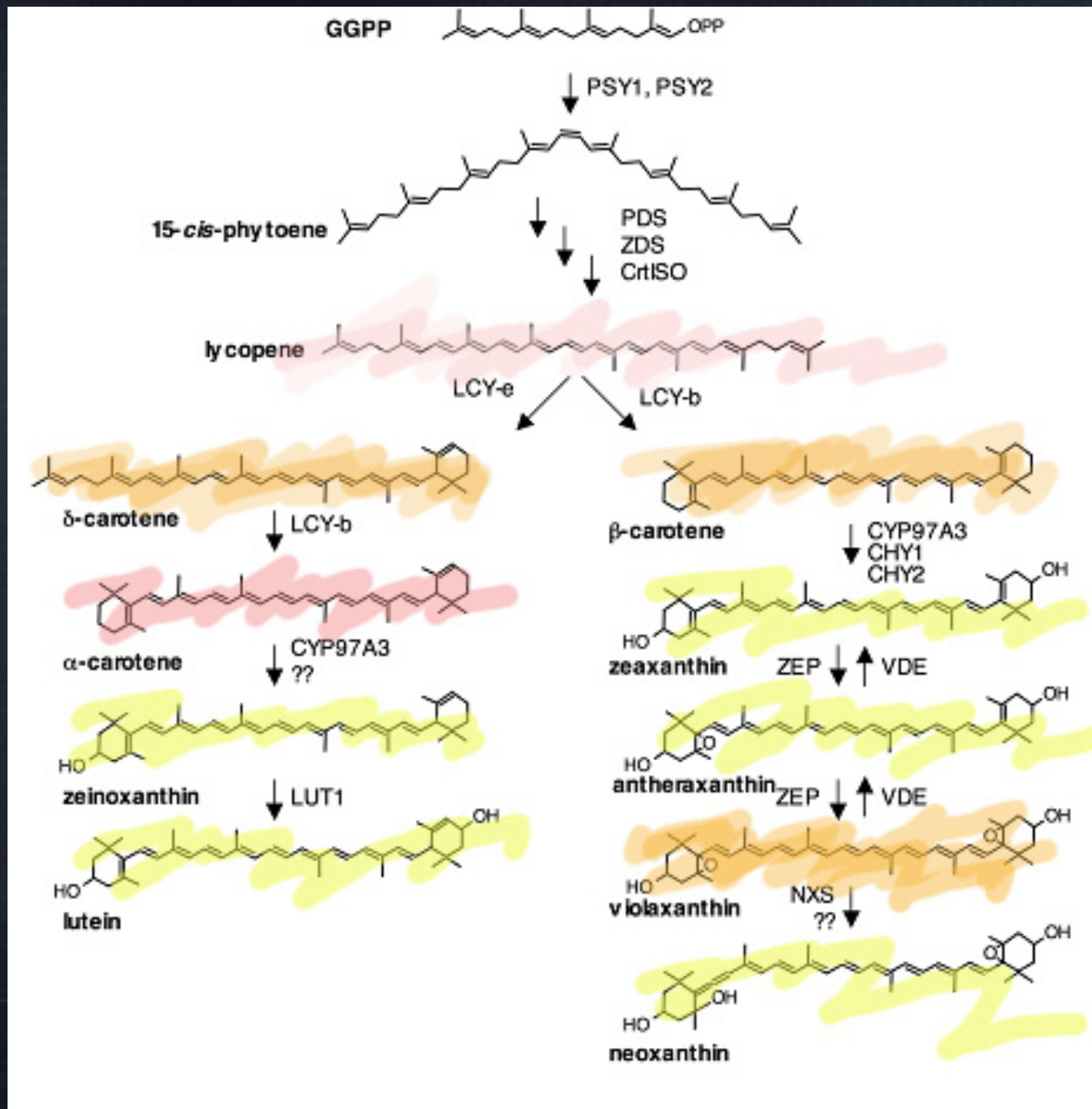
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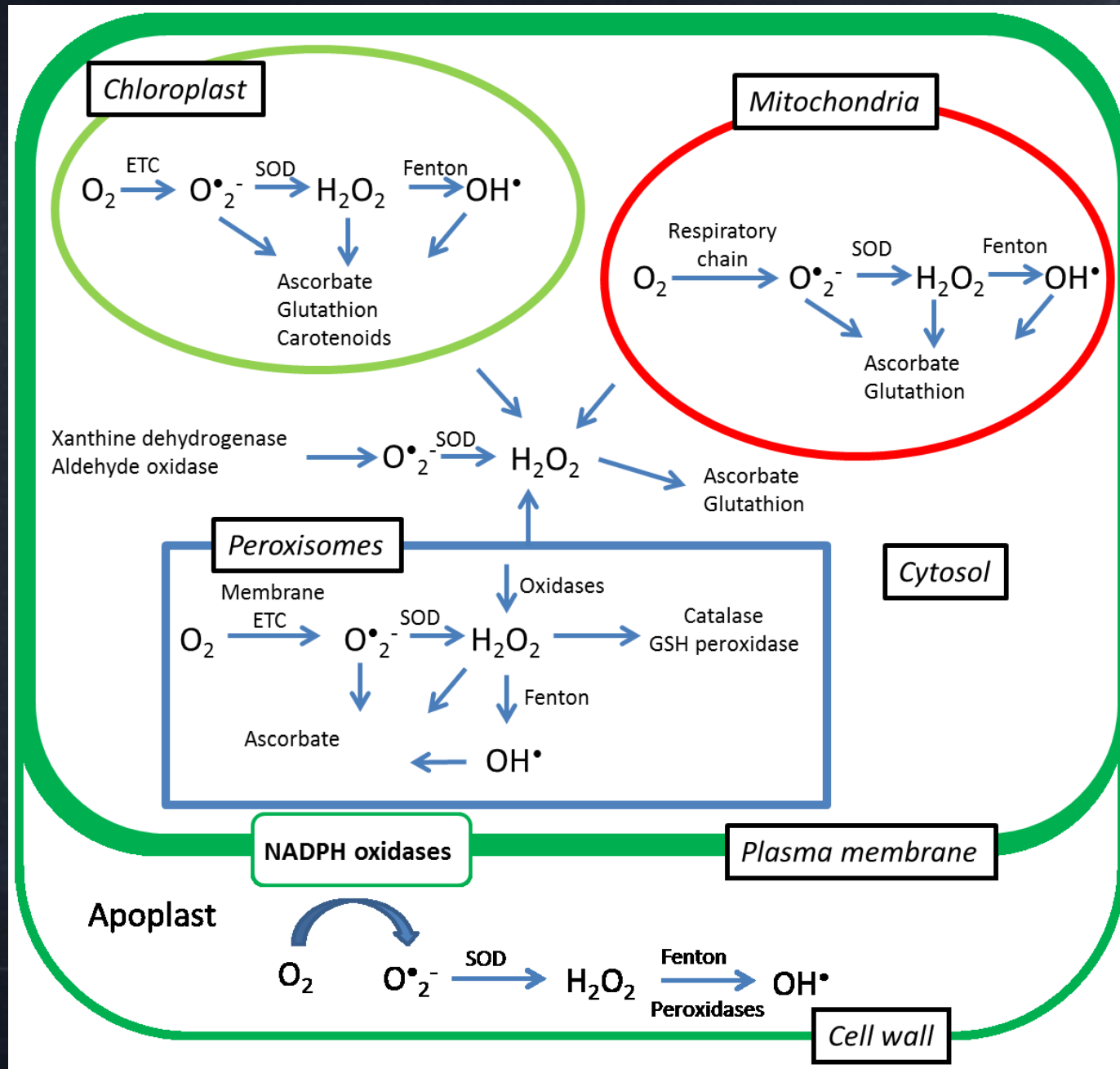
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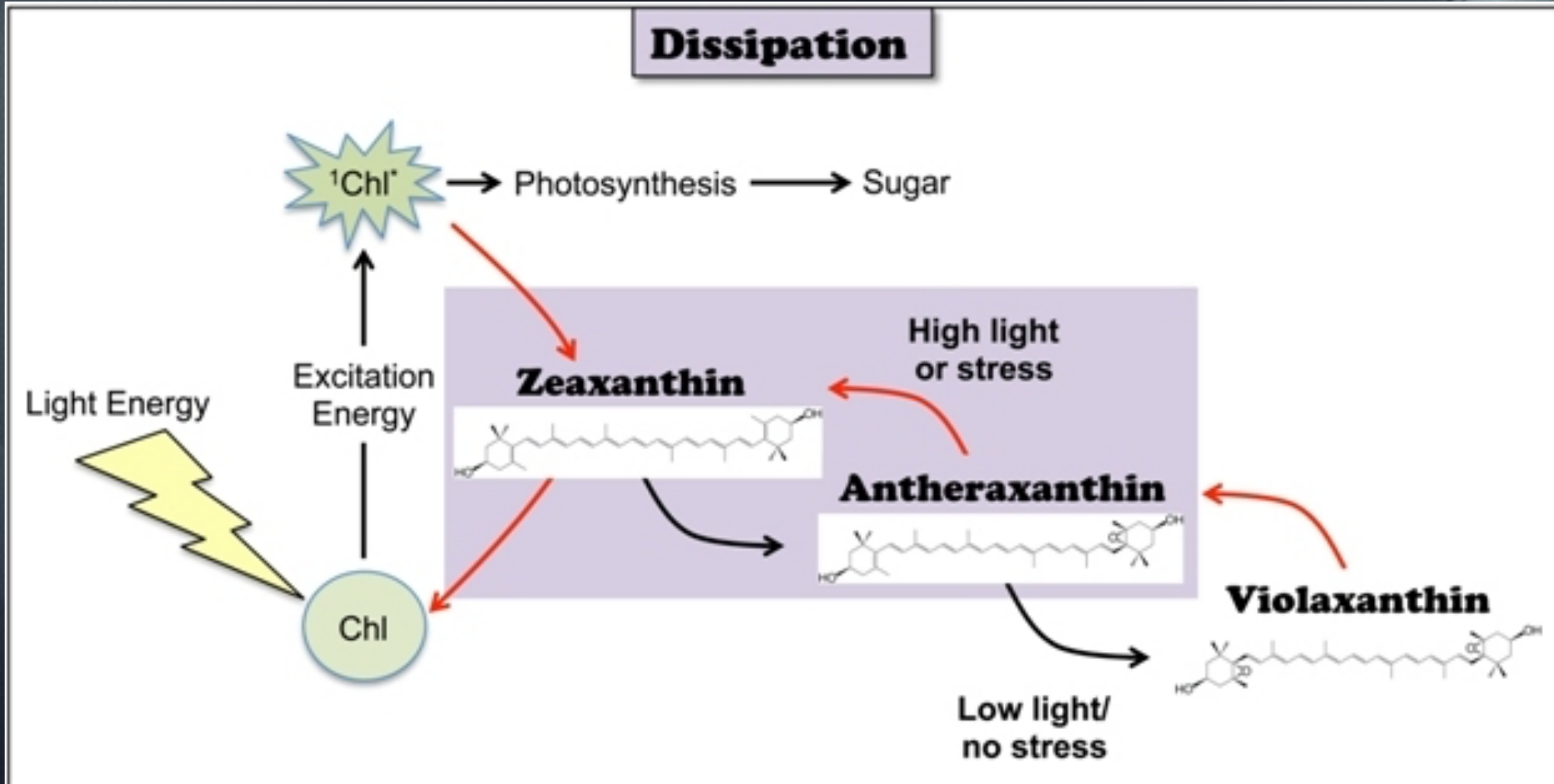
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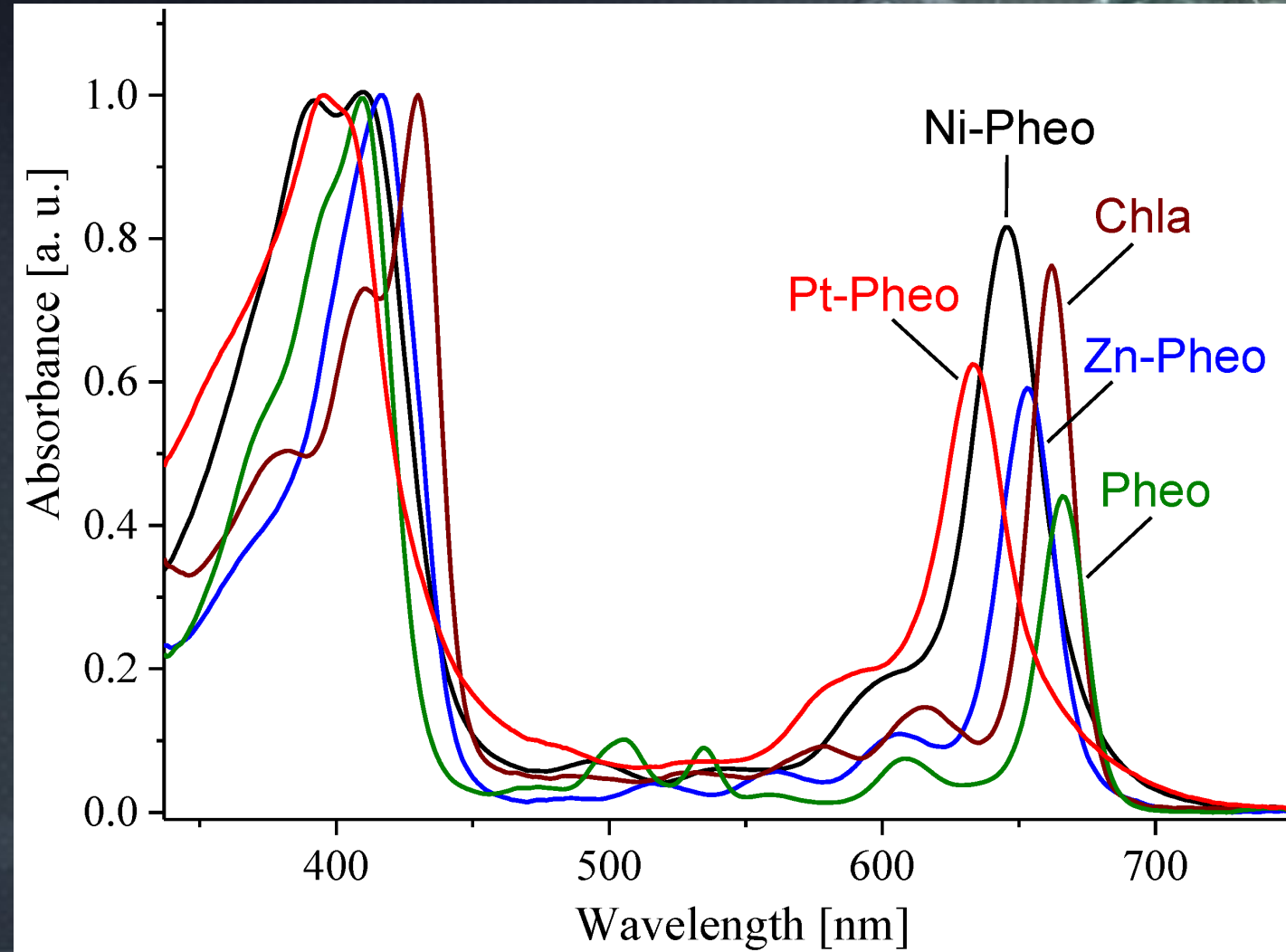
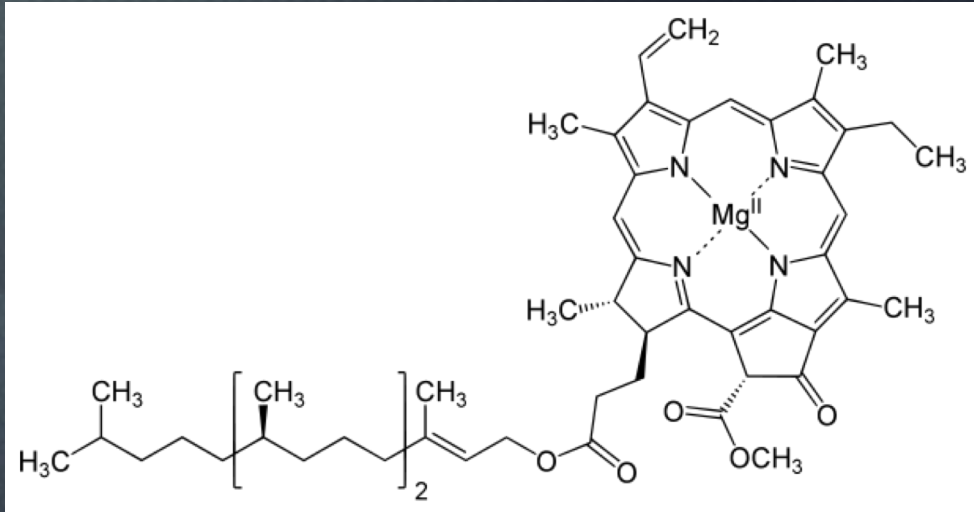


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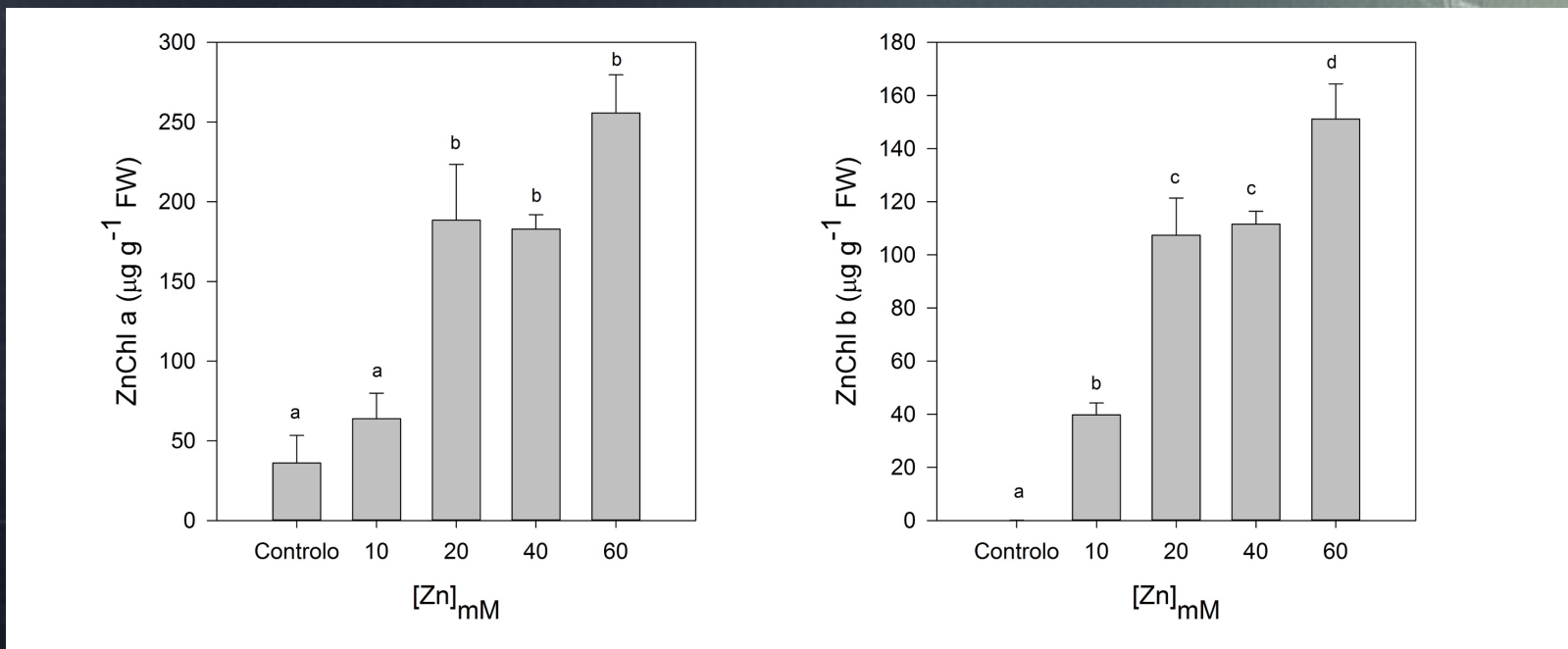
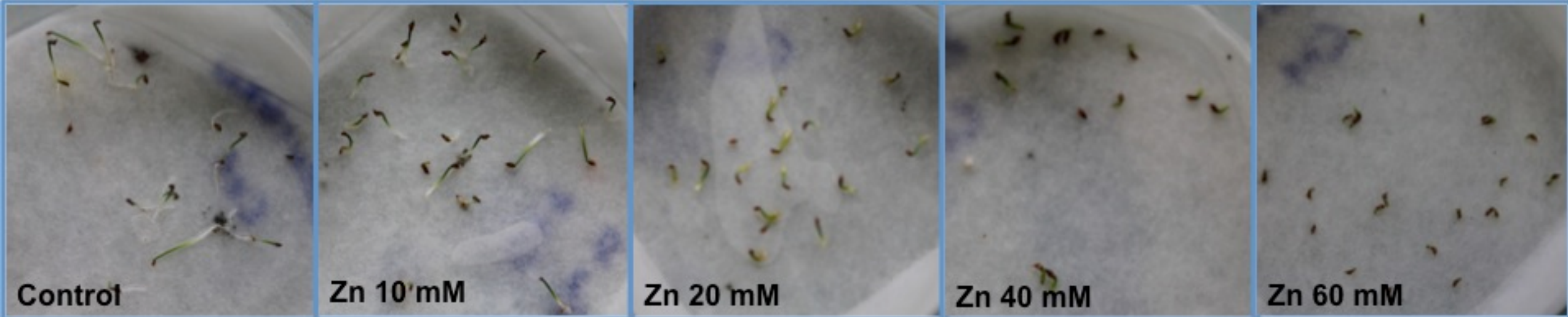
When cells, DNA is organized into long, thin fibers called chromosomes. These chromosomes are duplicated before cells divide. In a process called gene replication, eukaryotic organisms produce several copies of their DNA. Each copy of the cell nucleus and some of these DNA molecules, such as mitochondria or chloroplasts, are passed on to the next generation.



PLANT PIGMENTS



PLANT PIGMENTS



PLANT PIGMENTS

1. ADICIONAR 1,5 ML DE ACETONA 100% AO PELLET
2. COLOCAR AS AMOSTRAS NO BANHO DE ULTRA-SONS.
3. CENTRIFUGAR AS AMOSTRAS
4. FAZER O BRANCO E A LINHA DE BASE DO ESPECTROFOTOMETRO COM ACETONA APENAS.
5. USAR 1 ML DE SOBRENADANTE PARA LEITURA NO ESPECTROFOTÓMETRO A 632 NM, 665 NM E 470 NM.

PLANT PIGMENTS

$$\text{Clorofila a} = -2,6839 \times A_{632 \text{ nm}} + 13,2654 \times A_{665 \text{ nm}}$$

$$\text{Clorofila c} = 28,8191 \times A_{632 \text{ nm}} - 6,0138 \times A_{665 \text{ nm}}$$

$$\text{Carotenoides + Xantófilas} = (1000 \times A_{470 \text{ nm}} - 2,13 \times \text{Clorofila a} - 97,63 \times \text{Clorofila c}) / 209$$