

# ECOTOXICOLOGIA

## AULA PRÁTICA 8

random] plaseid

The presence of a DNA double helix structure is a characteristic feature of all living organisms. The DNA molecule is composed of two antiparallel sugar-phosphate backbones, with nitrogenous bases attached to the deoxyribose sugar. The bases are paired through hydrogen bonds, forming the rungs of the ladder. The sequence of these bases determines the genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

Chemically, DNA consists of a backbone of deoxyribose sugar and phosphate groups, with nitrogenous bases attached to the deoxyribose sugar. The bases are paired through hydrogen bonds, forming the rungs of the ladder. The sequence of these bases determines the genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

Within cells, DNA is organized into very condensed, labeled chromosomes. These chromosomes are replicated before cell division. In prokaryotes, the DNA is organized into a single circular chromosome. In eukaryotes, the DNA is organized into multiple linear chromosomes. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.

The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information. The DNA molecule is packaged into chromosomes, which are visible under a light microscope. The DNA molecule is the primary source of genetic information, and its structure is essential for the storage and transmission of genetic information.



## PLANEAMENTO DAS AULAS

*AULA 1 (02.03) – INÍCIO DOS TESTES DE ECOTOXICOLOGIA*

*AULA 2 (09.03) – EFEITOS DO BEZAFIBRATO NA GERMINAÇÃO DOS ORGANISMOS TESTE (TAXAS DE INIBIÇÃO E CONSTANTES DE INIBIÇÃO IC50)*

*AULA 3 (16.03) – MARCADORES BIOFÍSICOS DE TOXICIDADE I*

*AULA 4 (23.03) – MARCADORES BIOFÍSICOS DE TOXICIDADE II*

*AULA 5 (06.04) – ANÁLISE ESTATÍSTICA MULTIVARIADA E ÍNDICES FOTOQUÍMICOS (TEÓRICO-PRÁTICA)*

*AULA 5 (13.04) - MARCADORES BIOQUÍMICOS DE TOXICIDADE I – PIGMENTOS VEGETAIS*

*AULA 6 (20.04) – MARCADORES BIOQUÍMICOS DE TOXICIDADE II – PIGMENTOS VEGETAIS II*

*AULA 7 (27.04) - MARCADORES BIOQUÍMICOS DE TOXICIDADE III – DANO*

## MEMBRANAR

*AULA 8 (04.05) – MARCADORES BIOQUÍMICOS DE TOXICIDADE IV – DANO MEMBRANAR*

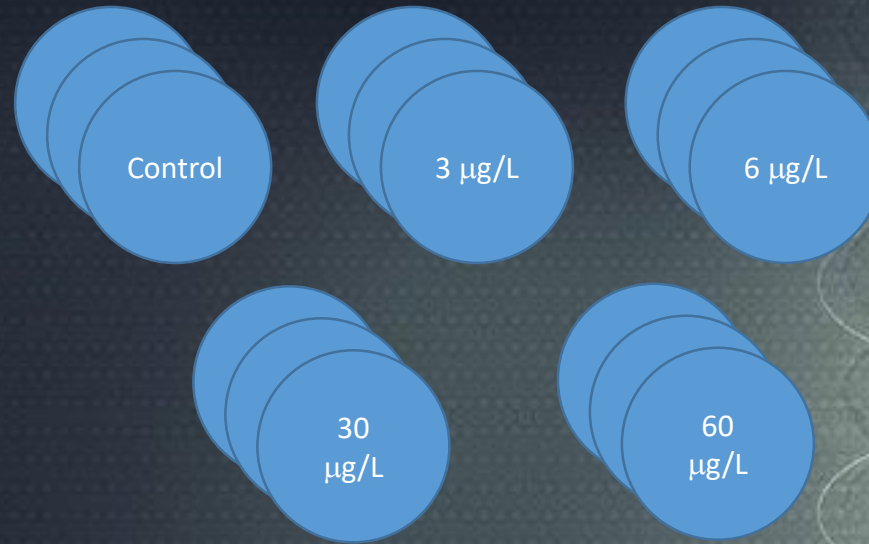
*AULA 9 (11.05) - TÉCNICAS DE EXTRAÇÃO E ANÁLISE DE METAIS PESADOS*

*AULA 10 (18.05) - NANOTOXICOLOGIA*

random][pLasatd



DELINEAMENTO EXPERIMENTAL



random][pLasatd

Chemically, DNA consists of two complementary strands of deoxyribose sugar-phosphate backbones, with nitrogenous bases of adenine, thymine, guanine, and cytosine. The two strands are held together by hydrogen bonds between the bases. Adenine pairs with thymine and guanine pairs with cytosine. The sequence of these base pairs is the genetic code that encodes information. This information is used to synthesize proteins, which are the building blocks of life.

When cells divide, DNA is replicated. In prokaryotes, DNA is replicated once per cell cycle. In eukaryotes, DNA is replicated once per cell cycle, but each chromosome is replicated multiple times. This results in multiple copies of each chromosome, which are then distributed to daughter cells during cell division.





PLANT PIGMENTS

Trichromatic method (µg/mL)

$$\text{Chl } a = 12.25 \times A_{663.2} - 2.79 \times A_{646.8}$$

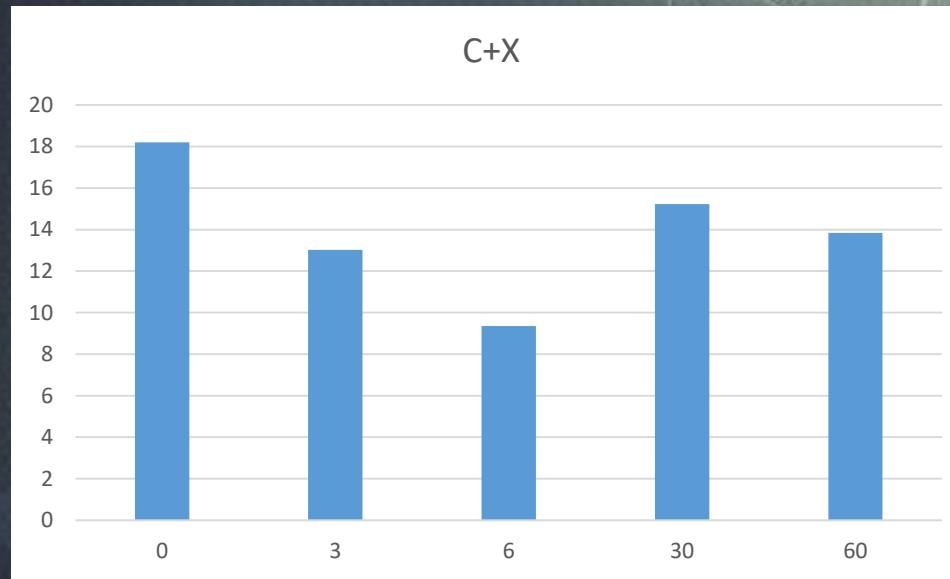
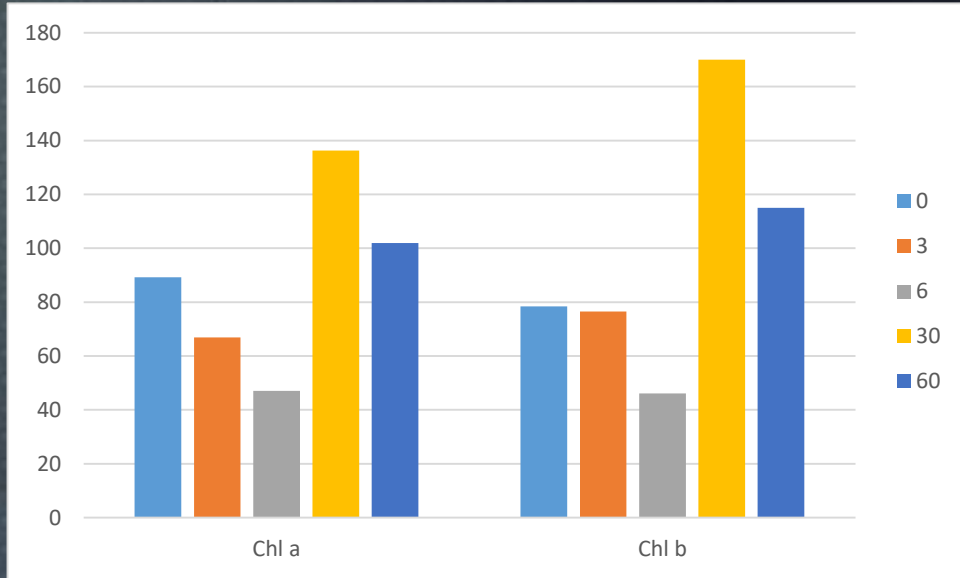
$$\text{Chl } b = 21.5 \times A_{646.8} - 5.1 \times A_{663.2}$$

$$C_{x+c} = (1000 \times A_{470} - 1.82 \times C_a - 85.02 \times C_b) / 198$$

random][pLasatd



PLANT PIGMENTS – TRICROMATIC EQUATIONS

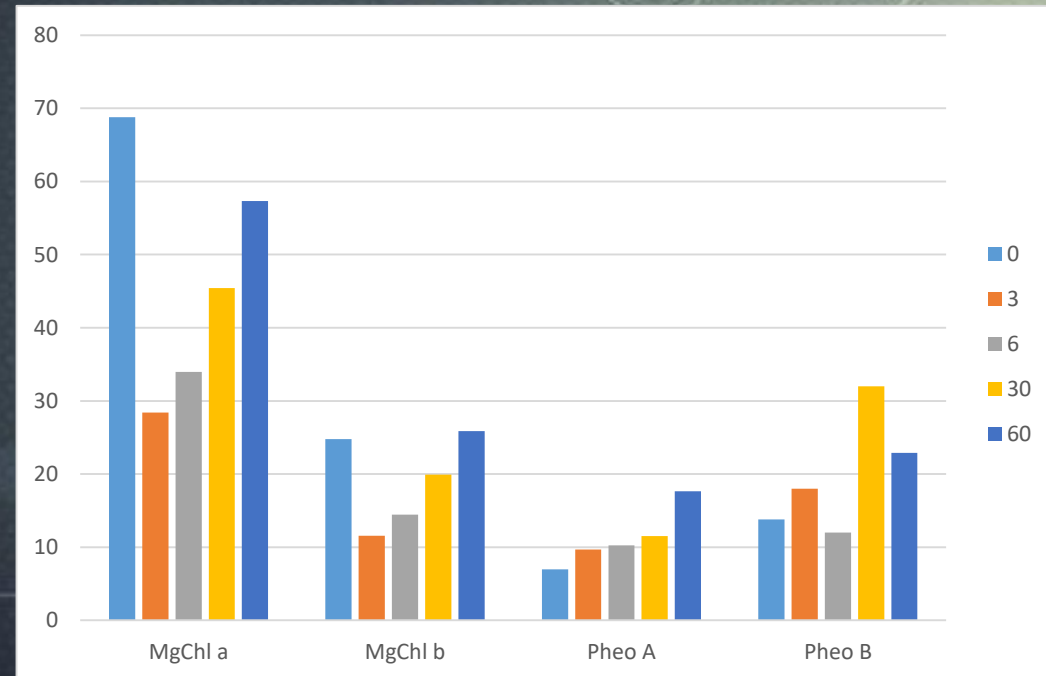
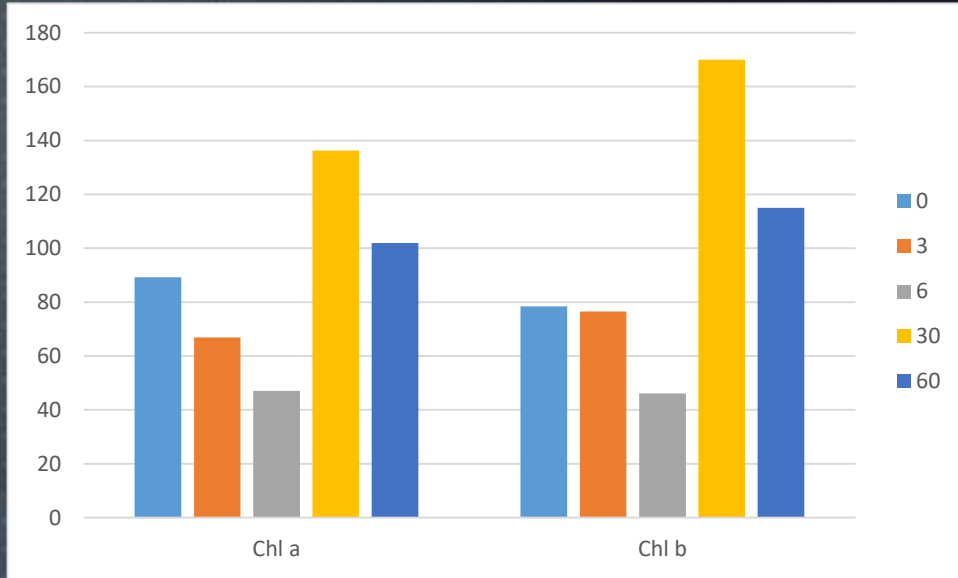


random][pLasatd

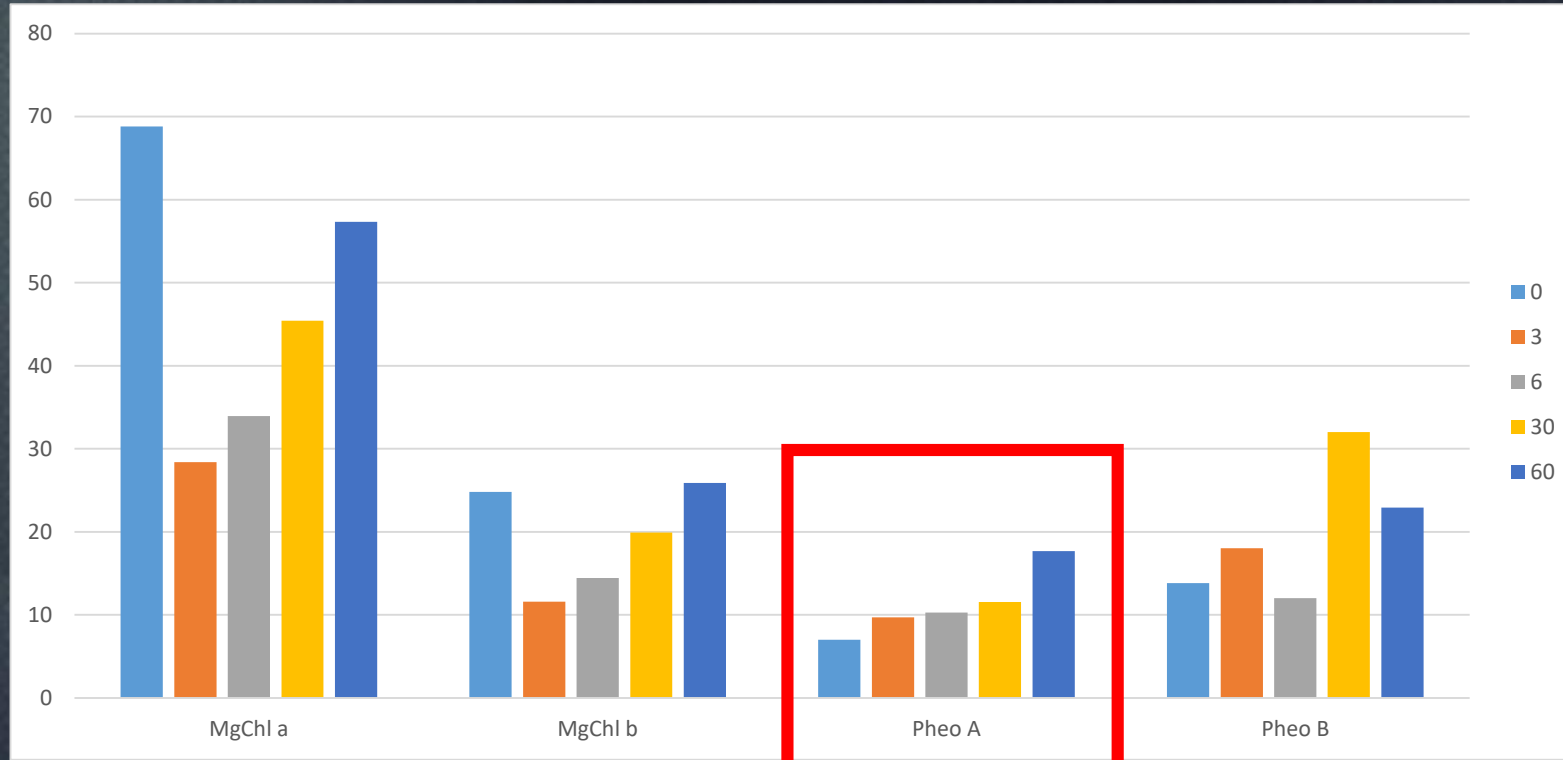
When cells, DNA is organized into tightly packed structures called chromosomes. These chromosomes are duplicated before cells divide in a process called DNA replication. Eukaryotic organisms, such as plants, fungi, and animals, store most of their DNA inside the cell nucleus and some of their DNA is organized, with mitochondria or chloroplasts, in organelles that are thought to have originated from free-living prokaryotes.



# PLANT PIGMENTS – GPS VERSUS TRICROMATIC EQUATIONS

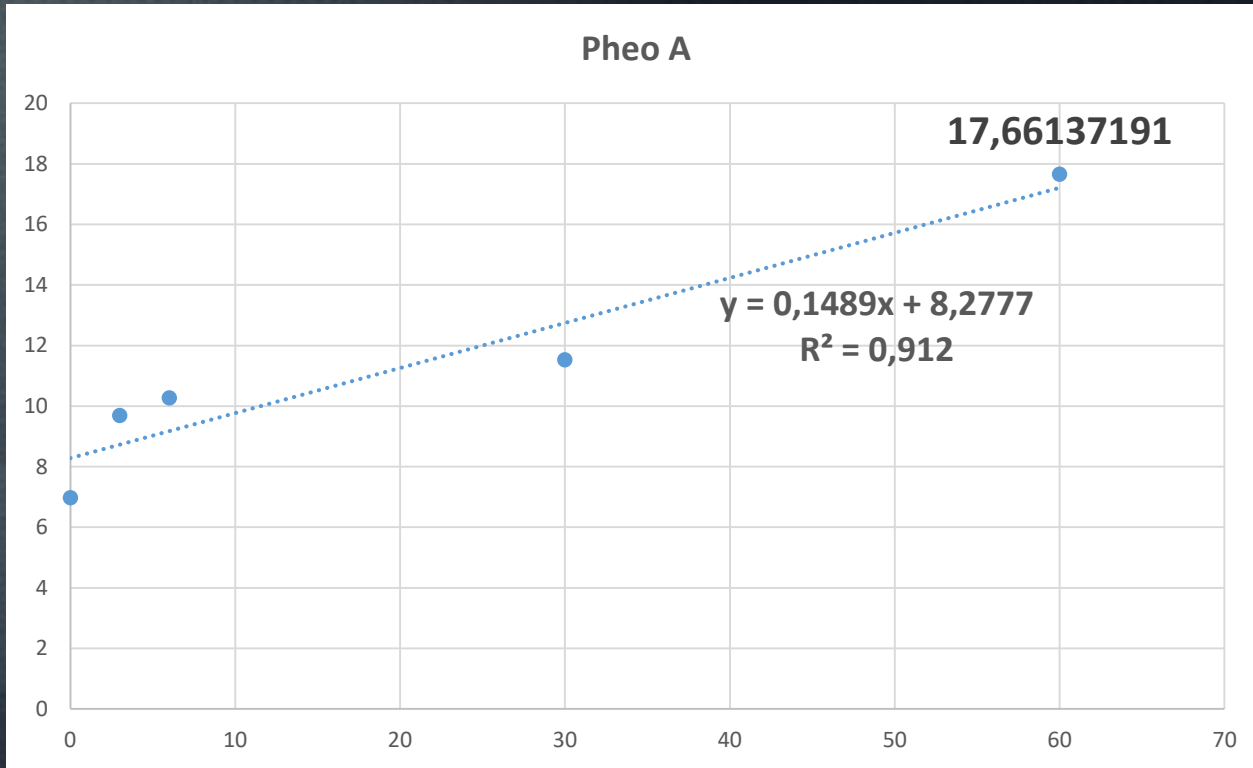


PLANT PIGMENTS – GPS





PLANT PIGMENTS – GPS



IC50 or EC50?

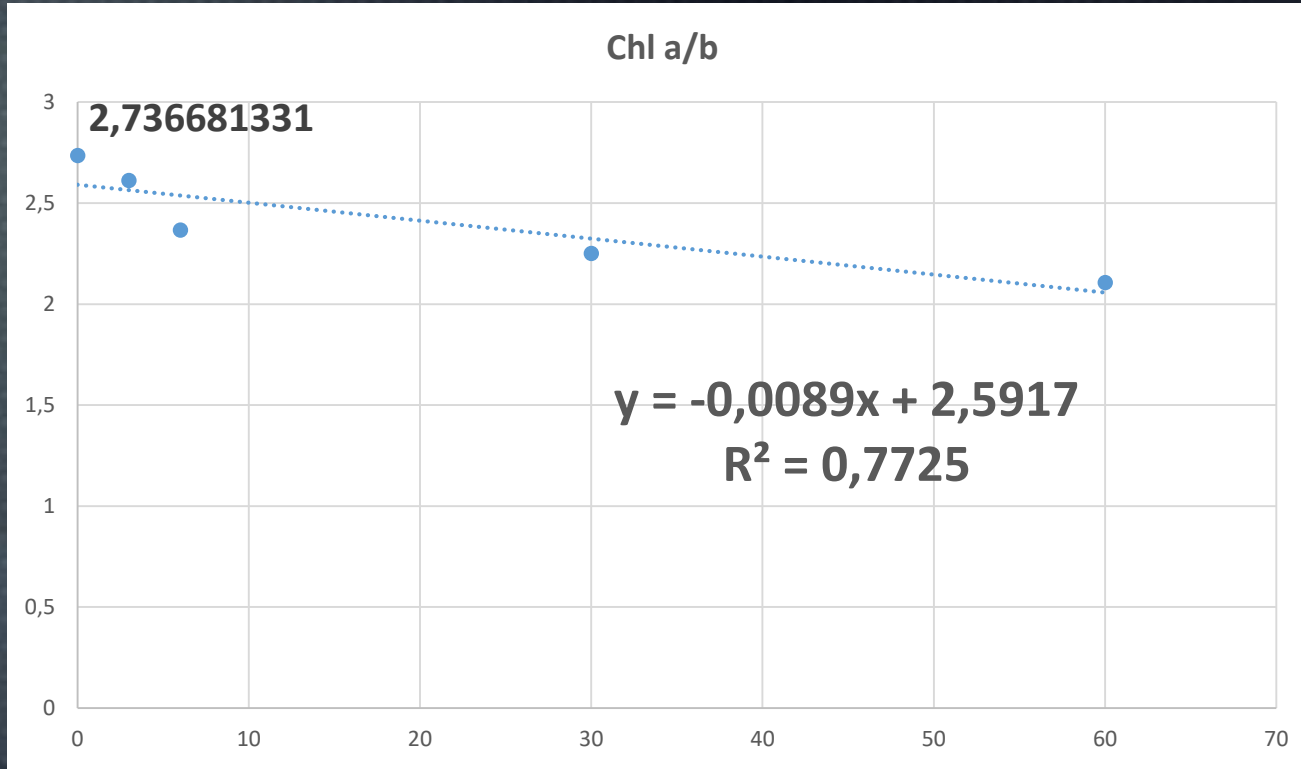
random][pLasatd







PLANT PIGMENTS – GPS



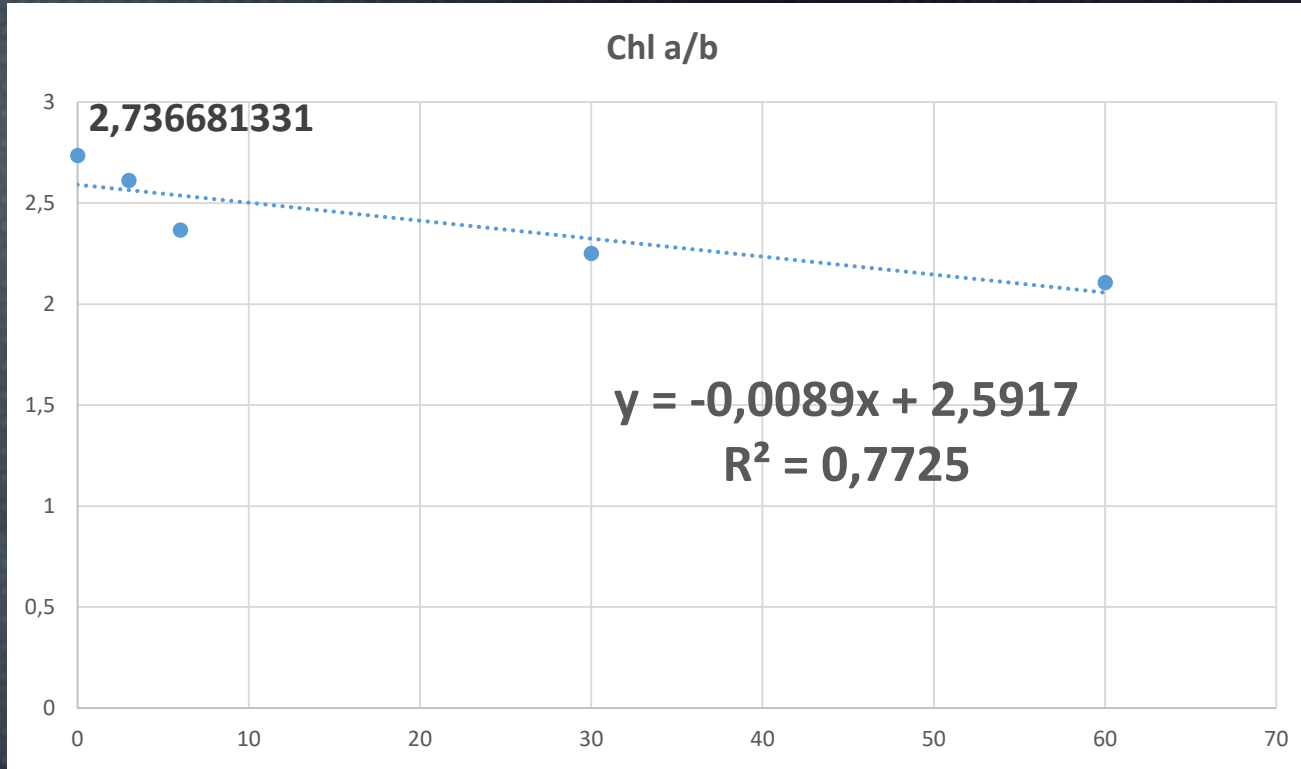
IC50 or EC50?

random][pLasatd





PLANT PIGMENTS – GPS



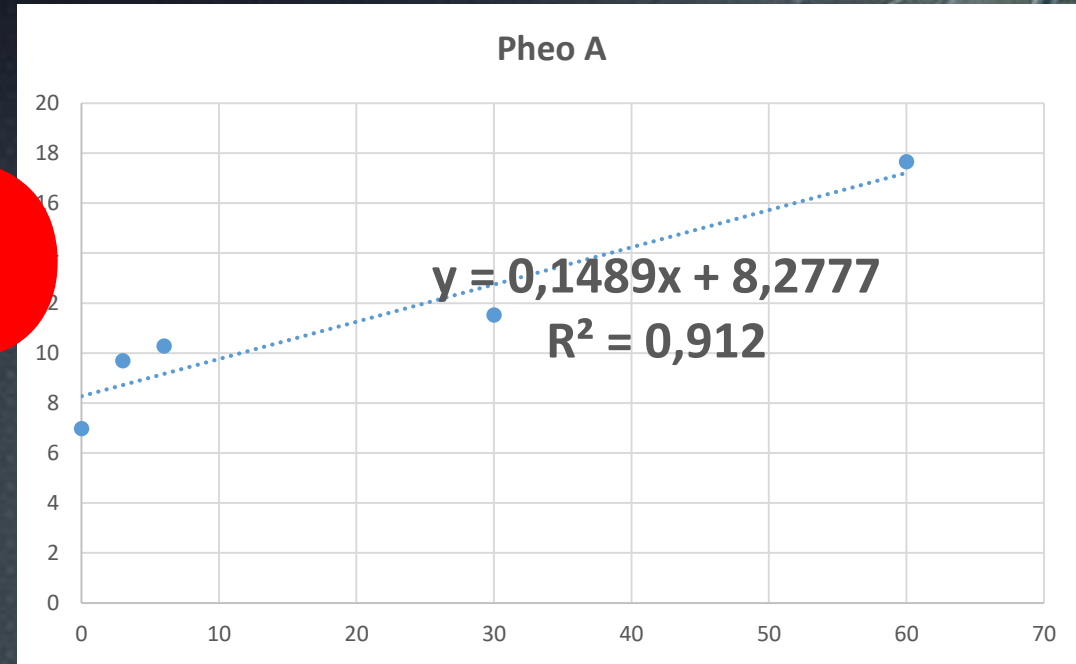
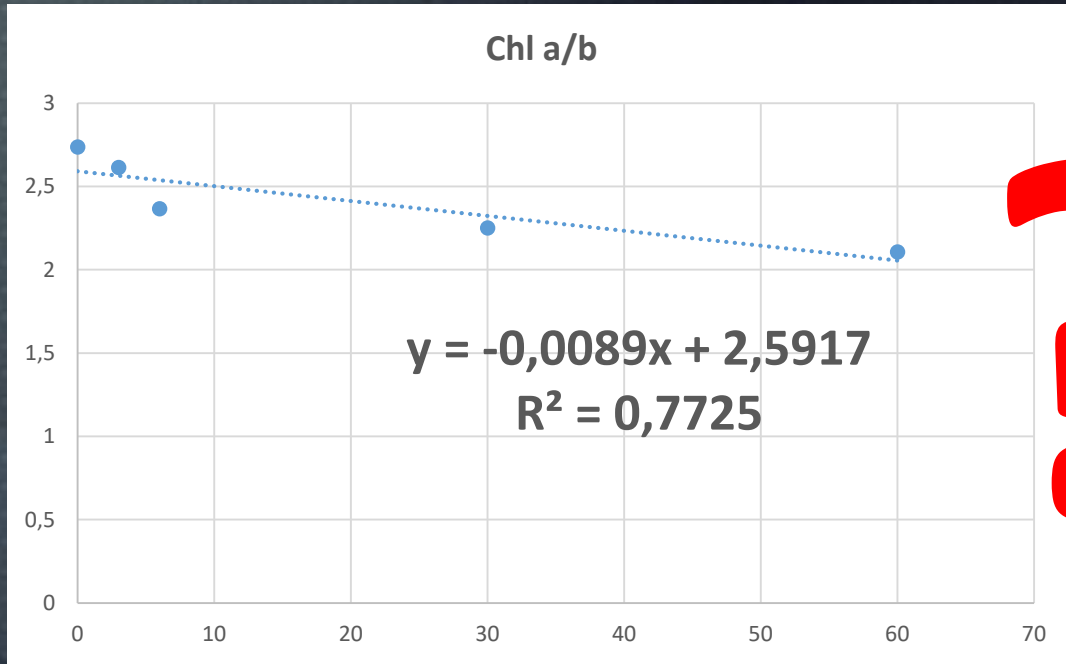
IC50 = 138 mg/L BZ

random][pLasatd



PLANT PIGMENTS – GPS

EC50 = 1.5 mg/L BZ



IC50 = 138 mg/L BZ

random][pLasatd



PLANT PIGMENTS – GPS



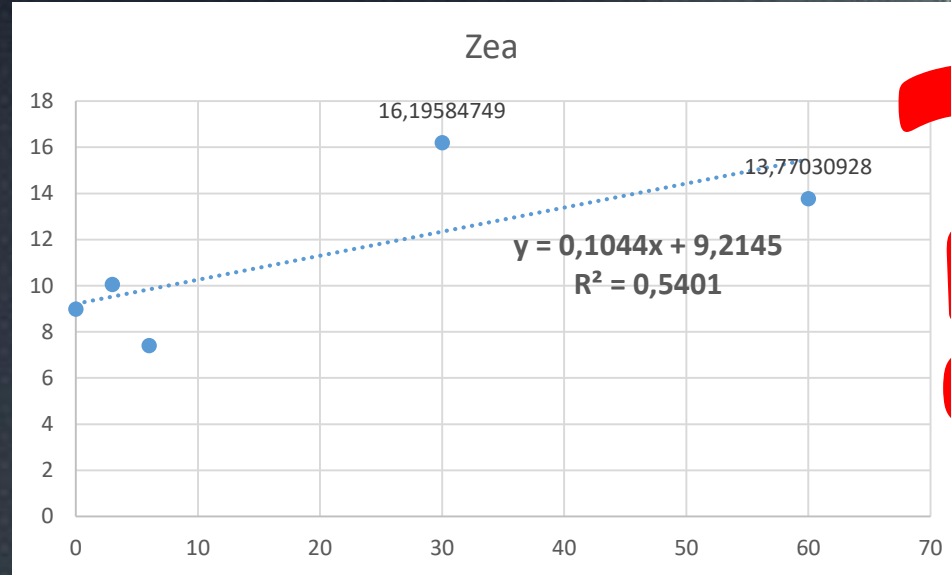
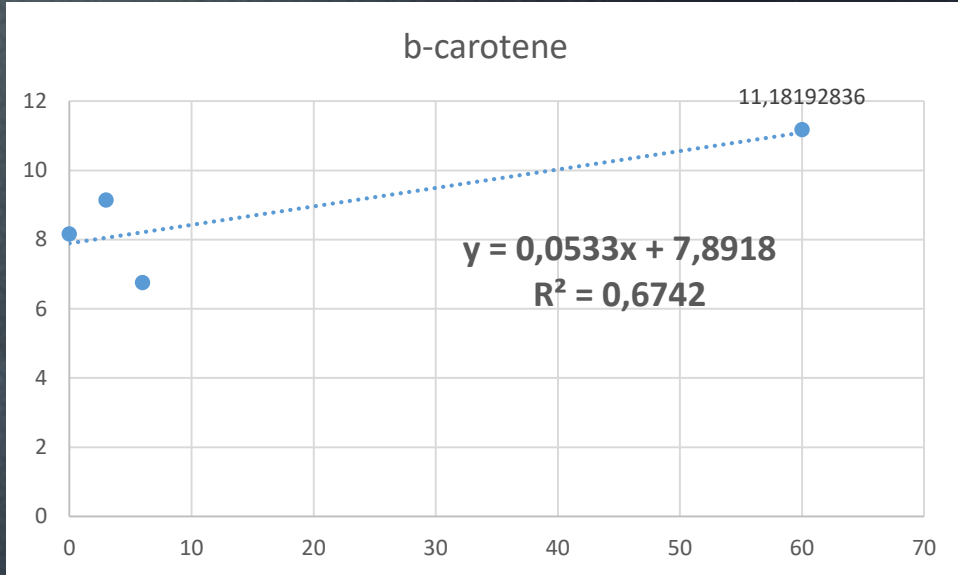
Chemically, DNA consists of two complementary strands of opposite polarity. The strands are held together by hydrogen bonds between the nitrogenous bases. The two strands are antiparallel to each other and are therefore said to be oriented in opposite directions. The sequence of these bases forms the code for the synthesis of proteins. The information is passed on to the next generation by the process of DNA replication. The process of DNA replication is a semi-conservative process. The newly synthesized DNA molecules consist of one old and one new strand. The process of DNA replication is a complex process involving many enzymes and proteins. The process of DNA replication is a highly regulated process. The process of DNA replication is a highly regulated process. The process of DNA replication is a highly regulated process.

When cells divide, DNA is replicated. This process is called DNA replication. The process of DNA replication is a semi-conservative process. The newly synthesized DNA molecules consist of one old and one new strand. The process of DNA replication is a complex process involving many enzymes and proteins. The process of DNA replication is a highly regulated process. The process of DNA replication is a highly regulated process. The process of DNA replication is a highly regulated process.

random][pLasatd



PLANT PIGMENTS – GPS



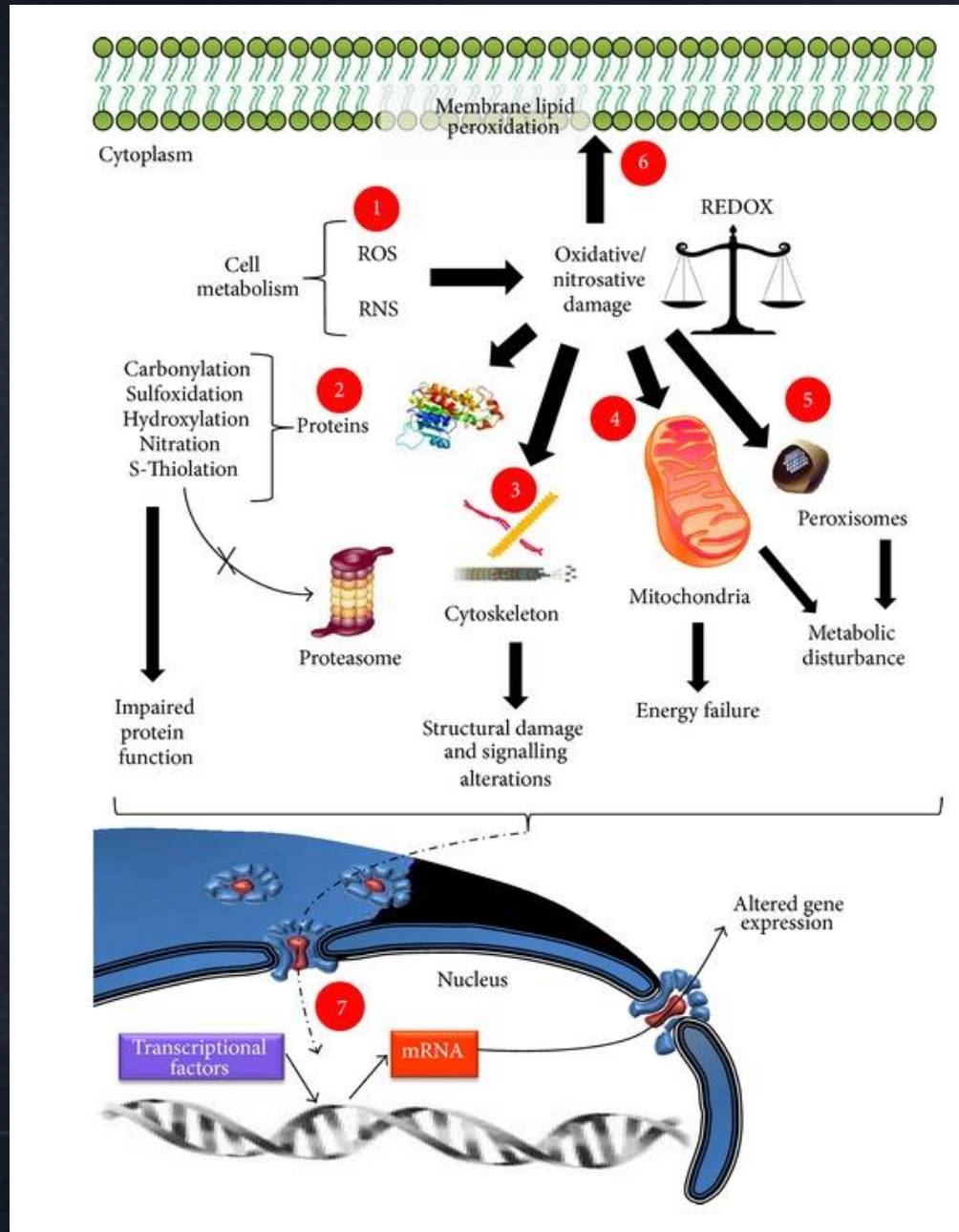
random][pLasatd

Chemically, DNA consists of two complementary strands of deoxyribose sugar-phosphate backbones, with nitrogenous bases of adenine, thymine, guanine, and cytosine attached to the sugar-phosphate backbone. The two strands are held together by hydrogen bonds between the nitrogenous bases. The sequence of these bases, known as the genetic code, determines the sequence of amino acids in a protein. The process of copying the genetic code into a messenger RNA molecule is called transcription. The process of copying the messenger RNA into a protein is called translation.

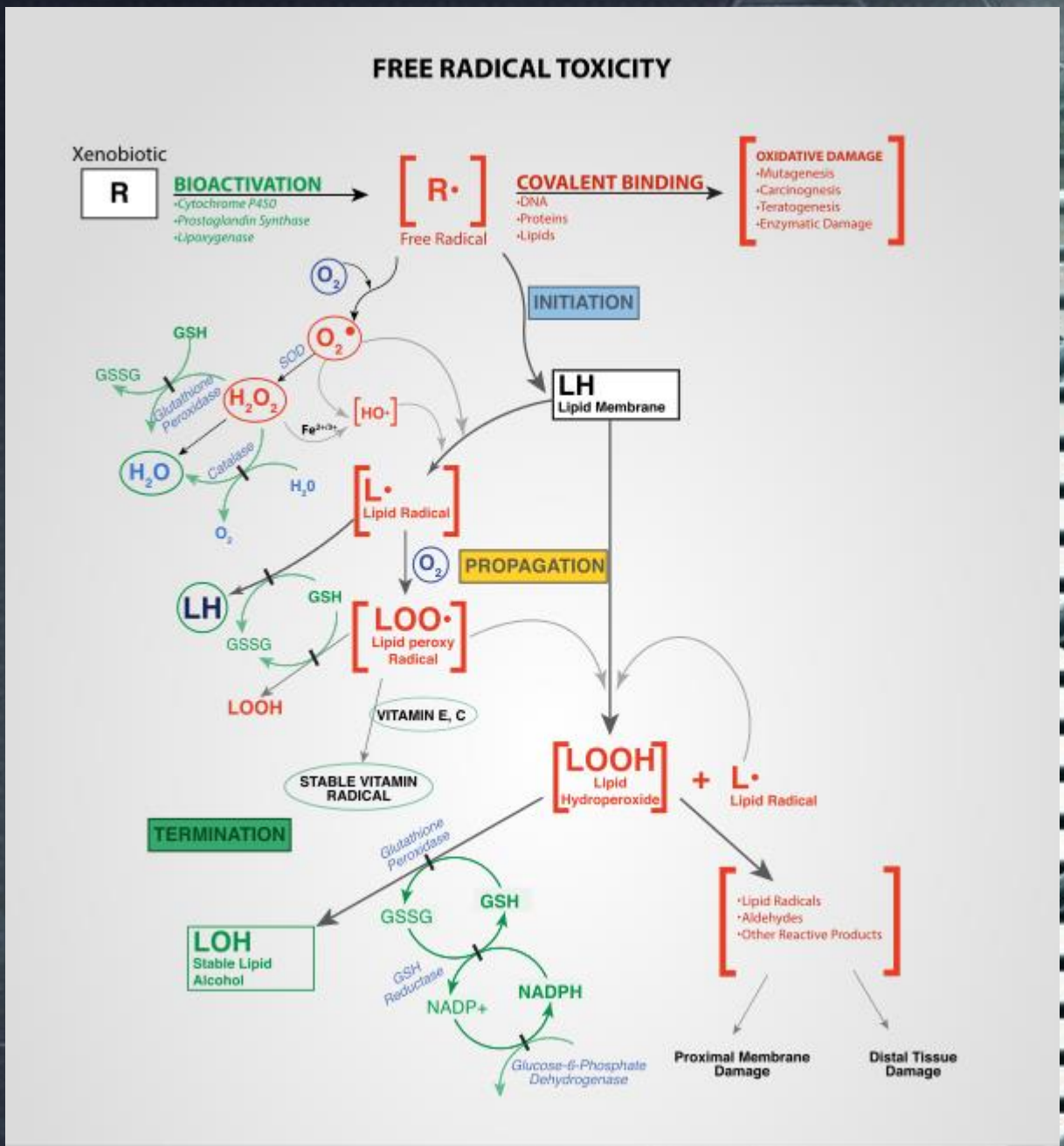
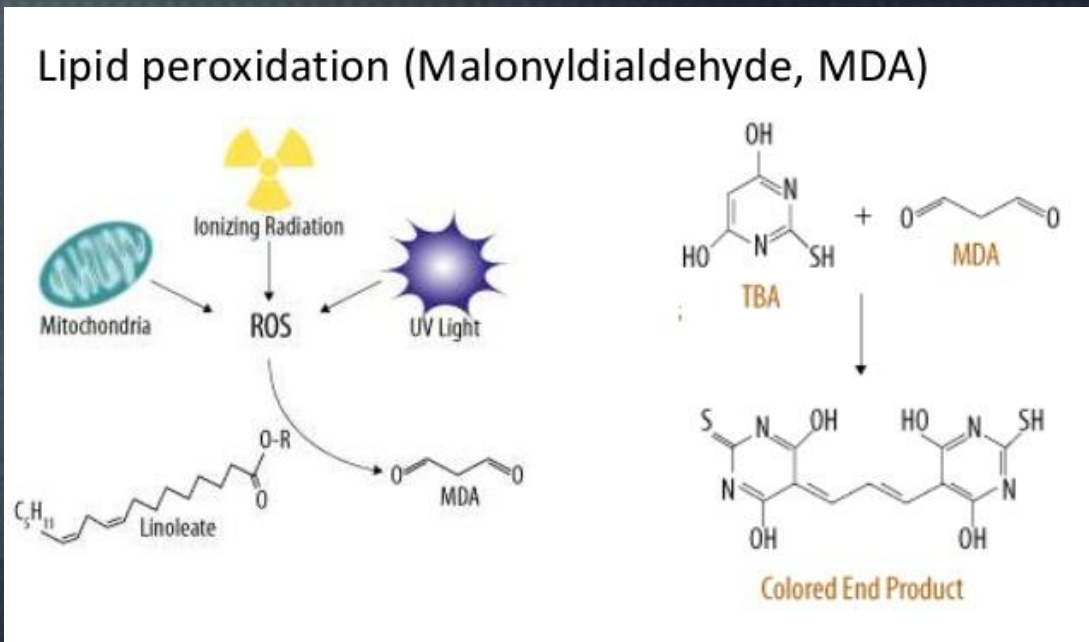
When cells divide, DNA is replicated very precisely. In eukaryotic cells, DNA is packaged into chromosomes. The process of DNA replication is a complex process that involves many enzymes and proteins. The process of DNA replication is essential for the growth and development of all organisms.



LIPID PEROXIDATION

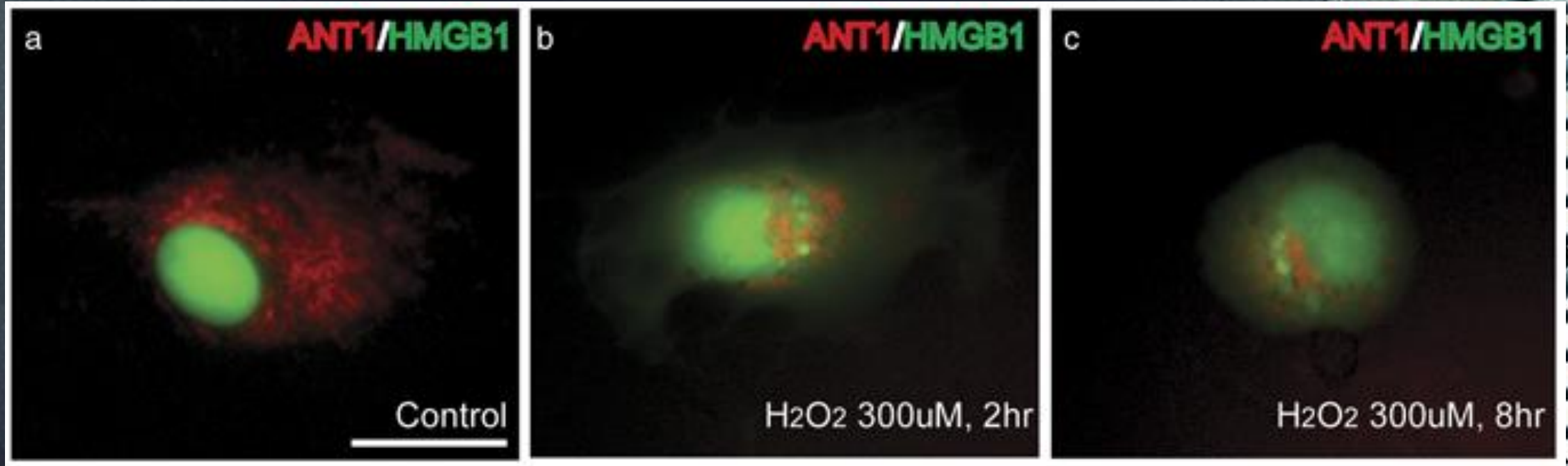


LIPID PEROXIDATION





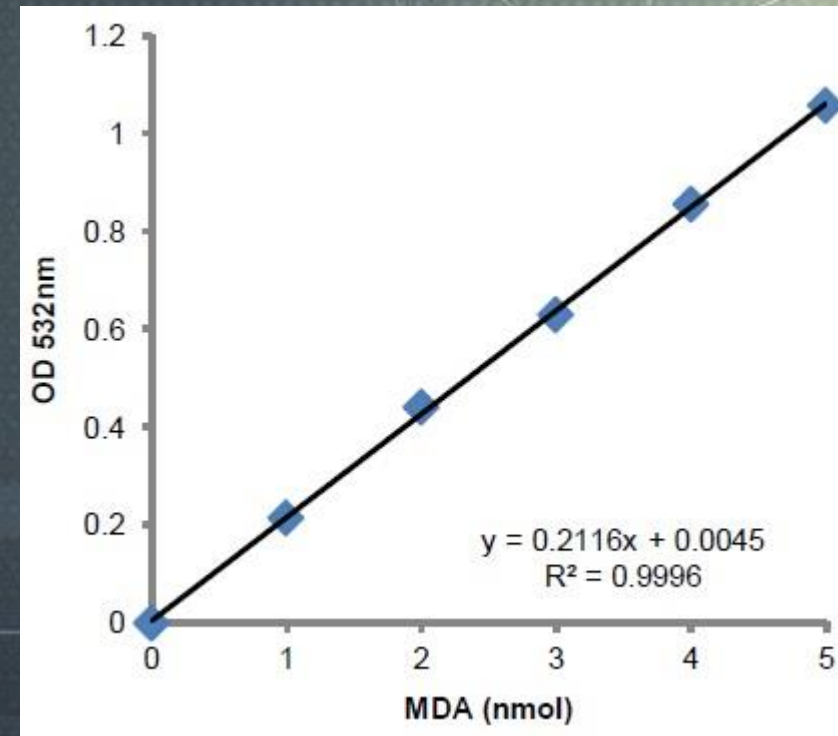
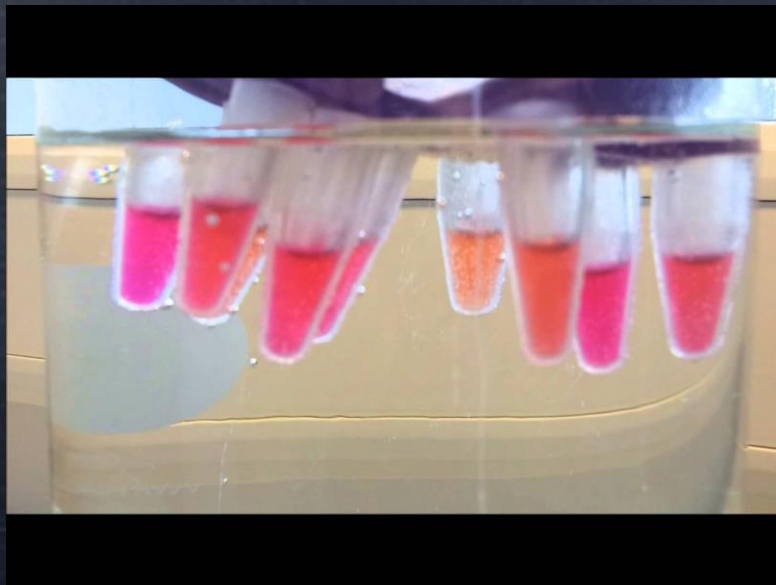
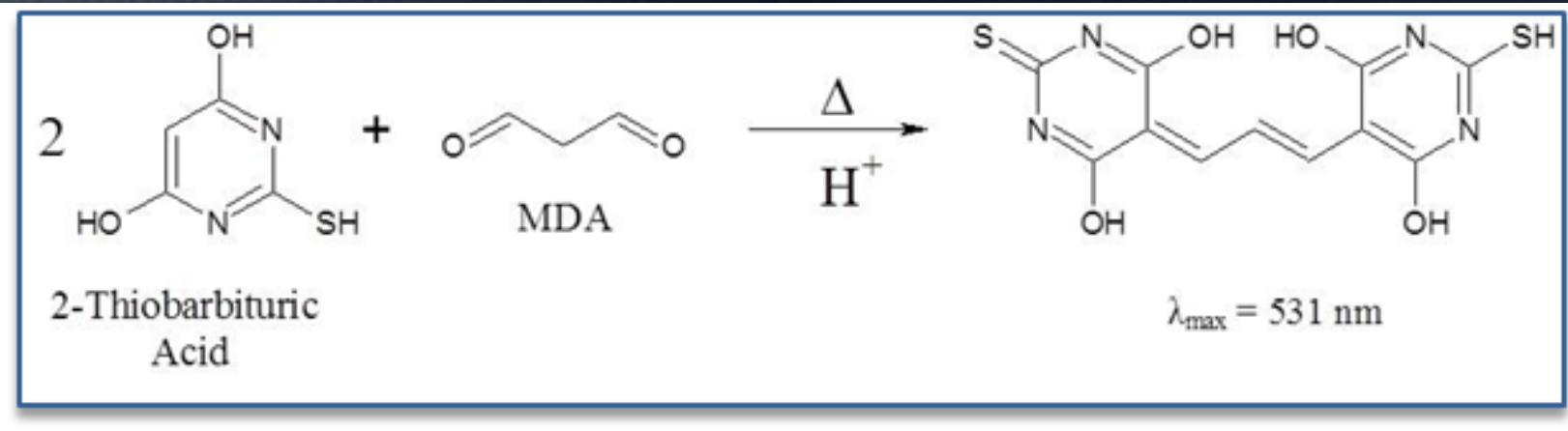
LIPID PEROXIDATION



simple and called nucleosomes. The two strands of DNA are intertwined with each other and as they are intertwined, they form a double helix. The sequence of these two strands is complementary, meaning that one strand is the reverse of the other. This allows the cell to use one strand as a template to synthesize a new strand during DNA replication. The process of DNA replication is called DNA replication and is a process that occurs in all living cells. In eukaryotic cells, DNA replication occurs in the nucleus and is a process that is tightly regulated. In prokaryotic cells, DNA replication occurs in the cytoplasm and is a process that is less tightly regulated. The process of DNA replication is a complex one and involves many different proteins and enzymes. The process of DNA replication is a key part of cell division and is essential for the survival of all living organisms.

random][pLasatd

LIPID PEROXIDATION/TBARS METHOD





## LIPID PEROXIDATION

- Homogenizar o material vegetal numa proporção de 1 mL de solução TBA/TCA por cada 100 mg de amostra.
- Colocar o extracto a incubar durante 30 min a 95 °C.
- Ler a absorvância a 532 nm e 600 nm e aplicar a equação ( $\epsilon$  [MDA] = 155 mM<sup>-1</sup> cm<sup>-1</sup>):

$$A_{532 \text{ nm}} - A_{600 \text{ nm}} = [\text{MDA}]_{\text{mM}} \times \epsilon_{\text{MDA}}$$