

# DNA Extraction From Plant

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# Plant cells

- ❖ Unlike animal cells, Plant cells containing a **hard cellulose cell wall**
- ❖ Like mitochondria in the animal cells, plants contain chloroplasts that have their own DNA.
- ❖ The differences between plant and animal DNA lie in the sequence of bases in the helix.
- ❖ The genomic plant DNA is often **larger** than animal DNA.



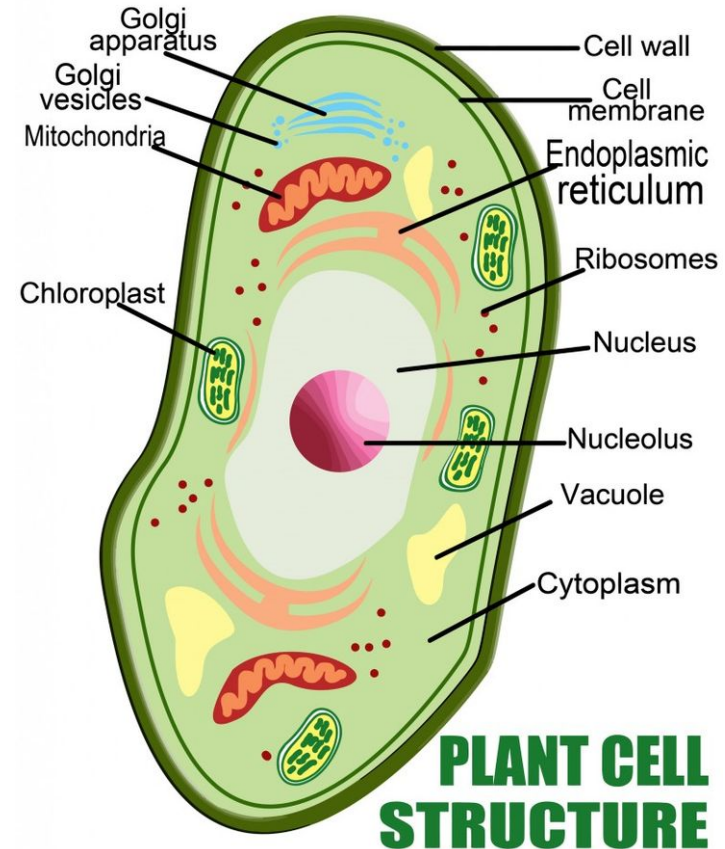
# Application of plant Genome

- Studying the characteristics of plant DNA.
- Genetic engineering to produce genetically modified plants
- The production of recombinant medicines and industrial products

# Method of plant DNA extraction:

The GOAL is to extract pure DNA with high quality

- 1<sup>st</sup> Lysis cell walls
- 2<sup>nd</sup> Break down the cell membranes
- 3<sup>rd</sup> Precipitation of the DNA





# Practical Part

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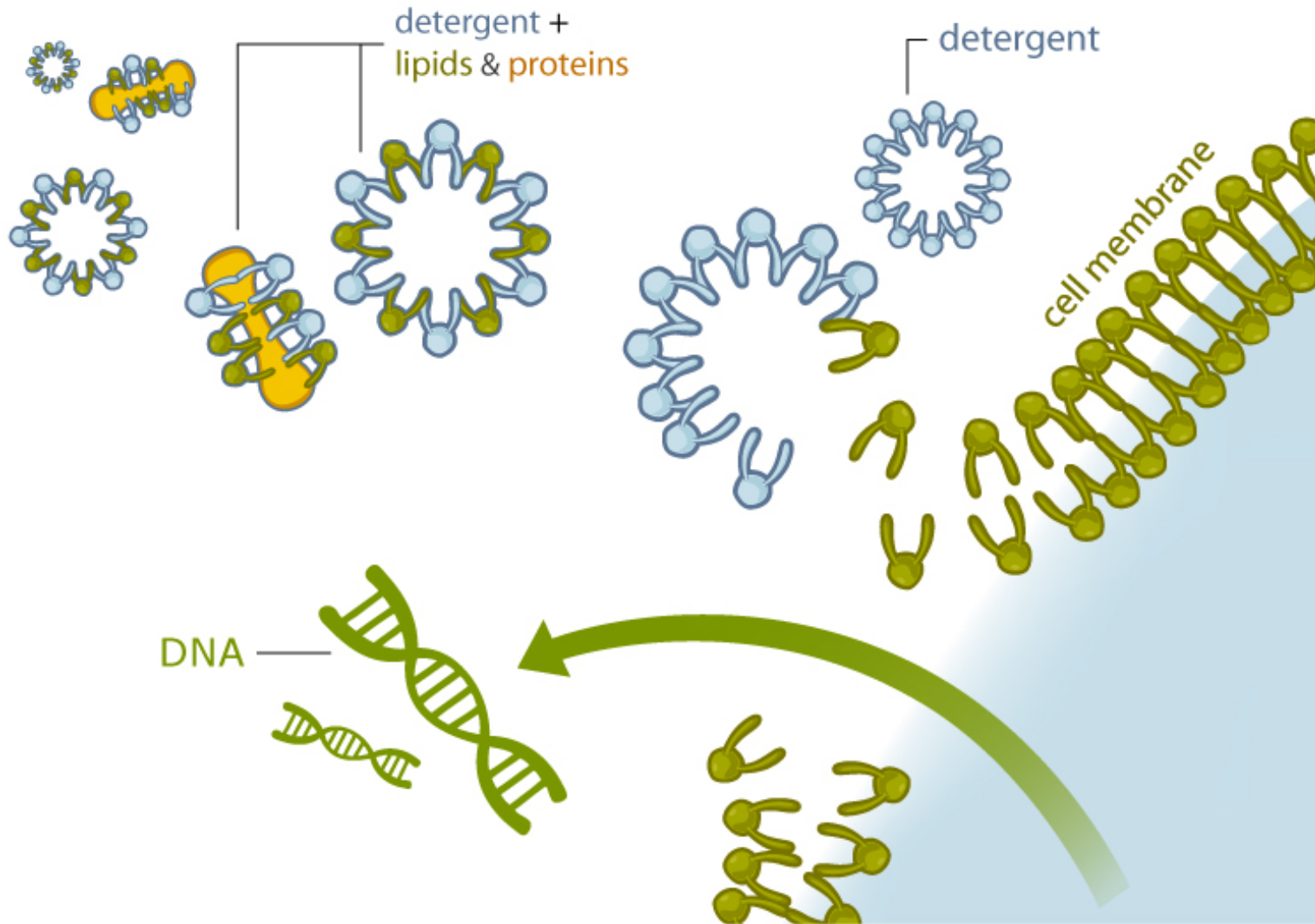
## Aim:

- To isolate pure genomic DNA from plant tissue.

## Principle:

- Lysis by using mechanical or non-mechanical methods, an initial grinding step is employed to break down cell wall and forming cracks in cell membrane.
- Detergents will break down the cell membranes.
- DNA is then precipitated using ethanol.

# Breaking of cell membranes by Detergents





# Results:

- Cloudy precipitation can be seen by the naked eye, and it represent the isolated DNA.
- The **concentration, purity, and integrity** of the extracted DNA need to be determined.





# Homework:

- What are the differences in DNA extraction between animal cells and plant cells ? And justify these differences.