BIOETHANOL FROM WASTE PAPER

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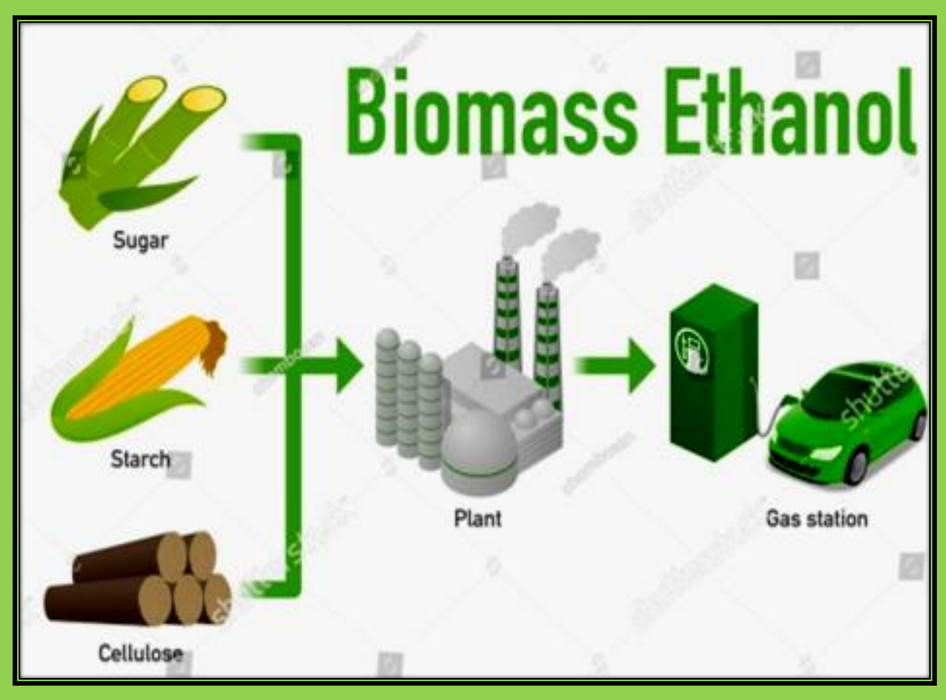
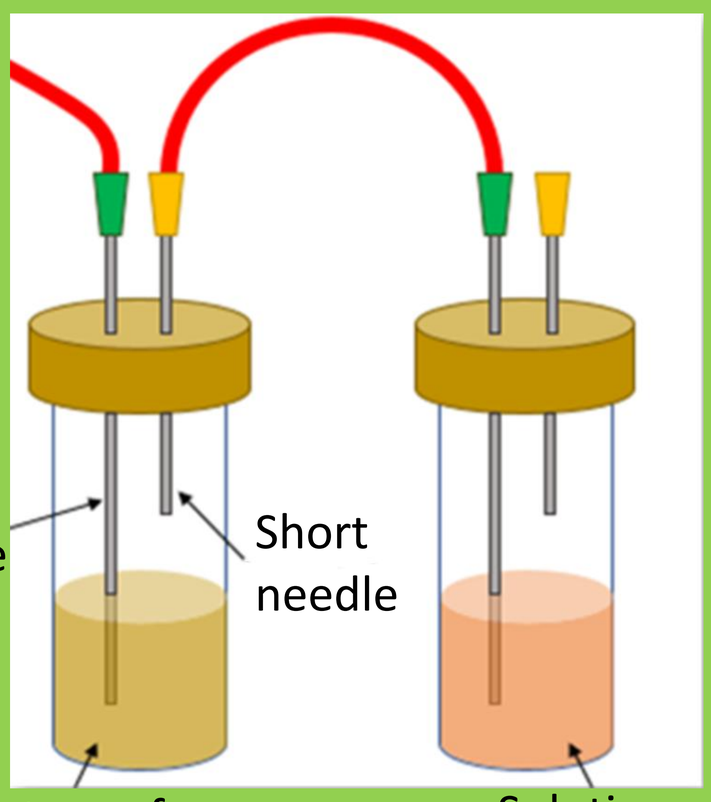
Nowadays one of the biggest problem in the world is the pollution produced by fossil fuels and also their exhaustion in the near future.

One of the possible way to reduce the use of fossil fuels is by using more ethanol based gasoline. Ethanol can be obtained from raw materials waste, it produces less CO_2 and particolate pollutants**.**

QUESTION:
How can we produce bioethanol?





ETHANOL EXTRACTION SET UP

METHOD

- Prepare a paper puree using a simple blender and adding water
- put the puree inside a closed laboratory tube
- add cellulase enzyme and grocery store yeast to the puree and left the mixture in a constant temperature oven (35°C) for about 24 h
- prepare a solution of water and pyridinium chlorochromate (PCC) in another tube
- force nitrogen gas or compressed air to flow through the fermented paper and then through PCC solution
- various reactions occur within the tubes and after about 10’ the presence of ethanol can be verified.

EVIDENCE OF THE ETHANOL PRESENCE

FUTURE PERSPECTIVES

In the future the production of bioethanol can be improved, while nowadays it is too expensive compared to the final product.