

Smart STEM Challenge

TOMATO DNA EXTRACTION

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Category: Biological and Ecological Sciences

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ABSTRACT:

DNA is the representation of each and every living organism. This experiment shows that DNA can be extracted in many different ways from the simplest to the most complex way of extracting it. Through this experiment, we conclude that each and every living organism has each different has different structures of DNA within them.

DNA Extraction is a routine procedure used to isolate DNA from the nucleus of the cells. When an ice cold alcohol is added to a solution of DNA, the DNA precipitates out of a solution. In this experiment, we will isolate the DNA of a piece of tomato to see what DNA actually looks like. It will also give us an idea of the amount of DNA we eat and some of its properties.

The experiment shows that every organism has different DNA structure. When adding the DNA buffer to the smashed fruits, the detergent helped lyse (pop open) the fruit cells, releasing the DNA into solution, whereas the salt helped create an environment where the different DNA strands could gather and clump, making it easier to see. Adding the cold rubbing alcohol to the filtered tomato liquid, the alcohol should have precipitated the DNA out of the liquid while the rest of the liquid, remained in solution. The group observed the white/clear DNA strands in the alcohol layer as well as between the two layers. A single strand of DNA is extremely tiny, to see with the naked eye, but because the DNA clumped in the activity, it is easier to see.

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