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BERRY FULL OF DNA

adapted from Diane Sweeney Labs, Pearson Education



Each cell contains many molecules of DNA. If you lined up those DNA molecules end to end, a single cell would contain six feet of DNA (about as tall as Officer Galason!) If the human body is made of about 100 trillion cells, each of which contains six feet of DNA, our bodies contain more than a billion miles of DNA!

In this investigation, you will be extracting DNA from other living things, strawberries and split peas. Specifically, you will be answering the question, what can we tell about the molecular structure of DNA by studying the characteristics of DNA purified from fruits and vegetables?

You will break open the plant cells and separate the DNA from the rest of the parts of the cell. Strawberries are especially a good source of DNA because they have 8 copies of each type of chromosome. You will never be able to eat a strawberry again without thinking of how much DNA is in it!

PRE-LAB

Read through the entire procedure. Complete the following pre-lab in your notebook

Why use soop? To get the DNA out of the cells you need to break open both the cell membranes and the nuclear membranes. Cell membranes and nuclear membranes consist primarily of lipids. Dishwashing detergent, like all soaps, breaks up lipids. This is why you use detergents to remove fats (which are lipids) from dirty dishes. Adding the detergent to your plant cell solution will break open the cell membranes and nuclear membranes and release your DNA

Why add ethanol? The cold alcohol reduces the solubility of DNA. When cold alcohol is poured on top of the solution, the DNA precipitates out into the alcohol layer, while the lipids and proteins stay in the solution.

In your lab notebook, answer the following questions. Write out the step of the procedure and then determine its purpose in isolating DNA from the other materials in the cell.

- 1. Blending the fruit or vegetable
- Filtering the extract through cheesecloth
- Mixing extract in a detergent solution. Layering cold ethanol over filtered extract
- A. Break open the cell
- B. Dissolve cell membranes
- C. Precipitate DNA (clump together DNA)
- D. Separate organelles, broken cell wall and membranes from proteins, carbohydrates and DNA

MATERIALS (per set of lab partners)

- 2 zip-lock bags
- 20 ml pureed strawberries
- 20 ml pureed split peas
- 10 ml DNA extraction buffer (soapy, salty water)
- Filtering Apparatus: cheesecloth (2), funnel and small beaker
- Ice cold ethanol in a wash bottle
- Test tubes
- Glass rod

Concerning the Extraction of DNA

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3. Feel year theft of a loss fruit and along into ting present on your white tile. 3. For these totalists a bester and add about 100 at all safest detergent solution

DNA's bases may be modified Damaged base by deamination or alkylation (AP site) glycolsylase Detects damaged base and removes it

Is kiwi fruit genetically modified. What fruits are related to kiwi. Extracting dna from kiwi fruit worksheet. Extracting dna from kiwi fruit explanation. Extracting dna from kiwi tes.

In contrast to fresh pineapple, the enzymes in canned pineapple have been denatured (destroyed) by heat and can not help in the digestion of protein gelatin. It is found in the centers of all living, including those kiwi fruits! (If you are curious about the term Polish, you can find out more about polhas here.) DNA mold has a fascinating double licent structure with two backbone strands united by pairs of molecular groups called bases. Drawing to the right, which illustrates the basic DNA structure. When the solution is removed from the refrigerator, it should be mixed gently before the test pipes are filled. They fit like a lock and a key, allowing only the correct combination. Filtering can be done in a refrigerator at night. Figure 1. Figure 2a. Figure 2a. Figure 2b. Salt allows DNA strands to join. Prepared by the Biotechnology Writing, the containment of the State University of Iowa Introduction Materials Preparation of Professor Student Instructions Introduction The DNA is present in the Lulas of All Living Bodies. Enzymes catalyze the reactions (accelerate) in living things - they letters the wheels of the machinery of life! Each enzyme operates in an specific substance called its substrate. Leave to put two small bowls, one with a pieces of canned pineapple, the other with fresh pineapple pieces. Using a fork, mash the kiwi fruit in a folder (Figure 3). It turns out that the molks of heat -sensitive enzymes - their structures are destroyed by heat and are not more capable of functioning as catalysts. However, a onion does! Back to the enzyme and, therefore this reaction and no other is accelerated. Let cool and place in a small bowl. Figure 5. Figure 7. The scientist must be able to separate the DNA from unwanted cell enough to No broken. To extract this DNA, we have to sear it from all other cellular parts. Put the glass glass in a hot water bath at 55-60 degrees C for 10 to 12 minutes. The science part has many types of proteans, all composed of units called aminoidal units. Passing a sieve removes most of these unwanted bits. Put a 1 cup meter glass (250 ml of glass). The test tube should contain about 1 tablespoon of solution or be about 1/3 complete. When pouring the mixture into the filter, avoid letting the foam enter the glass glass. Alcool can be added to at least the way. DNA is found within the chromosomes within the Intrance of the Clas that compose each living thing, including its kiwi fruit. Peel the kiwi, cut them into about 12 pieces and place the parts in a 4-cup meter glass (1000 ml). Add distilled water to make a final volume of 100 ml. It is difficult to imagine how it is a mullet of DNA, as it is small. (b) Fill a pipette pasteur with A nalcool, place it at the bottom of the test tube and release the Álcool. [Back to the beginning] prepared by the Biotechnology Slice, the State University of Iowa reviewed 10/96, can you think for what? Salt allows DNA to precipitate from a cold solution of A nalcool. In the second experiment, the gesture that contains canned pineapple should define much more effective than the gathering with fresh pineapple. Dan a look at our diagram below. The DNA is not solid in the € alcool. The detergent dissolves the dollets of fat that maintains united cell membranes, which releases DNA in solution. This image illustrates a transverse section through a C © Lula-O DNA we want to extract can be found in the way, in the heart of the Lula. Observe and record results. In this activity, you can: follow the insurance instructions highlighted like this in red. However, we can it see a lot of real DNA with a transported experiment In your kitchen to extract the DNA from a kiwi fruit. Dissolve salt slowly stirring to prevent foam. Let the solution rest for 2 to 3 minutes without disturbing it. It is the order of the foundations that store the necessary information to describe living things - you can think of the foundations as a little like the lines of a computer program. Download this pamy as a sheet of activity (PDF, 259kb). For more uniform results between test pipes, stir the solution often when distributing it in the tubes. NOT Keep the mixture in the hot water bath for more than 15 minutes, because the DNA will start to break. Put the kiwi folder in a small bowl and add 100 ml of the salt detectives mixture of step 2. DNA is the polish of life, storing the information that makes all things alive which is what it is, humans, for the humble Kiwi. Your teacher has already prepared a solution for you, made of kiwi treated with salt, distilled water and detergent or laundice wash shampoo. In total there are 20 aminocts. Drizzle the chilled metilla spories on the purple and green layers. There is no advantage to distributing more than one spoon of solution in a test tube. In the first experiment, when you put a fresh -pineapple pedação on top of the golt, pineapple enzymes catalyzes the digestion of gelatin in the gellet. Solution can be stored in a refrigerator for about a day before being used for the exercise of laboratory. Cover the kiwi with the 100 ml solution of Step 2. Mother - What you need to do puts the metilla spories in a large bowl of ice so that it cools immediately (see Figure 1). The detergent, combined with the tumic treatment used in step 5, causes lipids (molty fat) and protein to precipitate solution, The DNA. When alcohol is added to the The components of the mixture except DNA remain in solution while the DNA precipitates in the Álcool layer. Figure 4A. Figure 4b. Make the air dissolved in the green layer come out like bubbles! This experiment depends on an enzyme in kiwi fruit to unlock DNA. The powerful enzymes of polymers who help make things work faster (you can find out more about enzymes below). Gelatin is a protein, which causes the gestalization to define; Enzymes are also a special type of protein and can be found in pineapple. What is happening? This procedure is designed to extract the Kiwi DNA in sufficient quantities to be seen and spool. Mix 25g of salt and 80g of 900 ml water wash woolen in a small bowl. You must see a rope white layer on the glass between the green and purple layers. No put metilated spories in a refrigerator or freezer, as a faa can light the smoke. Peel a kiwi fruit and close. The green kiwi folder now contain your DNA released, but it also has all the other things you have launched. It is important not to shake the test tube. When good results are obtained, there will be enough DNA to carry in a

glass rod, a pasteur pipette that has been heated at the tip to form a hook or a similar device. Most canned foods are thermally treated during pasteurization to extend their life. [Return to Start] Materials for preparation for teachers two 4 Xáras (1000 ml) measuring cups with 1 cup of 1 cup (250 ml) with ml marks measuring the knife of kiwi spoons to cut and mix the kiwi thermometer that measure 60 ° C (140 f), as a handmade filter of candy or funnel that will fit into A 4 -cup glass of glass no 6 CAFÃ © or hot water cloth -water filter (60ã? ° C) (60 ° C) (3 bedroom pan works well to hold the water) cold water bath (a large bowl works well) light shampoo, as how 2 to 3 Kiwi Table salt clarification shampoo, iodized supplies or not in class 1 test tube for each student, preferably with a lid, which contains Kiwi solution. (a) Place about 1 cm of A nalcool at the bottom of a test tube and add the kiwi solution. It can take more than an hour to recover most of the wool. During this period, press the kiwi mixture against the glass glass with the part of the spoon. Therefore, the pineapple pedação begins to sink into gelut, as its enyzmes help break the gelatin. You can watch the white DNA rush into the alcool layer. With the canned pineapple, this does not seem to be a problem. But DNA is still surrounded by polymers called protein. Fresh pineapple enzymes are breaking the gelatin that the gesture needs to define correctly. Here are two simple experiences to show enzymes in action. Sit in a hot cooker (without boiling) for 15 minutes (figures 4a and b). They are linked in chains of different lengths and orders to make all different proteans. Carefully stir to avoid too much foam (2a and 2b figures). First Experiment - Fresh pineapple prepare the gesture in accordance with the instructions in the package. It shows an enzyme (E) catalyzing the breakdown of another substance (s, substrate) in two different products (P). Pour the green paste through a glass sieve (Figure 5). You will need an equal amount of metilla spirit and kiwi folder (Figure 6). When the golling is defined, cut a piece of fresh pineapple and put it on top. The detergent causes the cell membrane to break the lipa lipids and proteins and interrupting the connections that maintain the united cell membrane. (C) Spill alcohol inside the test tube with a pasteur pasteur or drops of medicines. Materials it that you will need a bottle of metilla, a little salt, cheap washing wool (concentrated not so good), kiwi fruits (mature preference), a little ice, a little Hot water, a sharp, sharp knife of cutting, kitchen scales, a measuring jar, two bowls (one small, one large), a pan, a fork, a sieve and a glass. It is based on the use of domain equipment and supplies. Filter the mixture through a CAFION FILTER No. 6 placed in a filter on a 4 -cup meter glass. This occurs due to different temperatures of the two layers, Let the mixture cool in a cold water bath for 5 minutes. (A narrow glass container or transparent sprout vessel can replace the test tube.) Pasteur pipettes or medical drops 95% ethanol (grain) laboratory instructions [back to start The preparation of teachers configure the hot water bath at 55-60 degrees C and a cold water bath. This leaves the whole containment of the Lula, including DNA. Dispense with Kiwi solution in test pipes, one for each student. Fortunately, the fruits of kiwi contain an enzyme called proteinase - this attacks and breaks the proteans, releasing the DNA. This is your extracted kiwi fruit DNA - parabaval! (Figure 7). You need it: a mature fresh pineapple, a pineapple can, fruit gesture cubes (or another gelatin product), 3 small bowls and a knife. [BACK TO UNCIO] STUDENT INSTRUCTIONS The DNA Extraction Process of a Crane is the first step for many biotechnology laboratory procedures. So, when you pour the metilla spories on top, DNA turns into a healthy, because it cannot remain dissolved in metilla spories on top, DNA turns into a healthy, because it cannot remain dissolved in metilla spories. The DNA has the appearance of Branco Muco. For better results, the Álcool must be as cold as possible. According to experiment - o Fresh and canned preparation sufficiently for two bowls, following the instructions of the package. Procedure Add cold A nalcool to the test tube to create a layer of A nalcool on top of about 1 1 Mahaã £ s and oranges are not enough of these enzymes to work with this experiment, as DNA will not be released. By cutting and crushing the kiwi fruits, leaving them in the mixture of salt and detergent, we open the cell walls, called membranes. For 2 to 3 kiwi, make a solution that consists of a tablespoon (10 ml) of detergent or shampooing shampoes of crazy washing and a tablespoon of no 1/4 (1, 5 g) table salt. salt.

Password requirements: 6 to 30 characters long; ASCII characters only (characters found on a standard US keyboard); must contain at least 4 different symbols; Scopri ricette, idee per la casa, consigli di stile e altre idee da provare.

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