Effects of Biotechnology

Every year thousands of people die, but a few main causes are starvation and mosquitos. This is true for not only humans, but also many animal species. What if there was a solution to this? Many people think biotechnology could solve this issue, but I disagree.

Bio means life in English and technology is equipment or science developed to fix problems. Biotechnology has been used by humans for millennia, but only recently we figured out how to control it better. Biotechnology is a complex and helpful study and process. It has lots of variations, uses for society, and again is a confusing process if you haven't looked into it.

First, biotechnology has multiple categories, but the most common of them are artificial selection, genetic engineering, and cloning. Artificial selection is the oldest by far. It is used by selecting two of an animal or plant with desirable traits, and then breeding them. For example, people have been breeding yellow colored corn for years, because it tastes better. Because of this, the corn kept getting more and more yellow over time. This is because of alleles, which are variations, or flavors, of a gene. Most organisms receive one set of alleles from each parent, giving them two types for every gene. This is called your genotype. Dominant alleles are vital for artificial selection. Dominant alleles will show if your phenotype (observable traits), even if you have just one of them. For instance, if people want to breed horses with longer legs, and a horse had an allele for short legs and one for long legs, if the long leg allele was dominant, the horse would always have longer legs. So, they would breed that horse to get longer legs, for faster speeds.

Another popular type of biotechnology is cloning. A clone is an identical copy of a living thing or DNA segment. It can help endangered species by taking a doner cell from an organism, and a egg cell from another. The two are fused together by an electric shock, and form an embryo after duplicating itself. The embryo is then placed into a habitable organism which is born into a clone of the donor of the non-egg-cell. This was proven on July 5th, 1996 when "Dolly the sheep" was "born". Dolly was a clone of an Scottish Blackface sheep. She lived for about seven years, and had multiple healthy lambs.

The third is genetic engineering, where segments of DNA is transferred and/or modified, and then placed back into an organism. The first uses of this were around four decades ago. Genetic engineering is the most observable variation of biotechnology. To transfer DNA, scientists use a process called Gel-electrophoresis. This works by getting DNA samples into small packets called "wells" on a tray that is covered in agarose gel. On one end of the tray is a positive electrical current that sends the current through the gel. DNA fragments are negatively charged and move towards the other side when they do this. Smaller fragments travel further than larger ones. Next, they take a chosen (specific) fragment they want and put it inside of a vector, which is a DNA molecule used to transport a segment into a host. This creates a recombinant vector, which is then placed inside of a bacterium. Bacterium is usually chosen as the host because they multiply quickly. The DNA can also be inserted into a cell.

There are multiple on-going debates about if these processes should be legal and if they are safe. While lots of developed countries, such as Australia, USA, Germany, Canada, China, and others accept it, there are a few societies and countries that are unsure, for good reasons. If biotechnology continues to grow we could affect many species, food chains, and lifestyles by

releasing genetically modified organisms (GMOs.) In my opinion, I agree with people who mentioned this. It should be left as it is. An example is that we could make a super intelligent lethal virus or bacteria, or we figure out the DNA of the turritopsis dohrnii (immortal jellyfish), and we use it, and no one ever dies naturally. Another reason is that humans started using gas and that caused the global warming problem. Even if biotechnology only effected humans, there are eight different divisions of biotechnology labeled with colors, one of them being "dark", which researches and uses biotechnology for warfare. This has already happened unfortunately. In 1984 a cult used a dangerous strand of salmonella to infect over 750 people at a salad bar. This could be a reason of the anti-biotechnology countries. In my opinion, biotechnology could, but shouldn't, be used for our problems.

Though I covered the variations, uses, and procedures for biotechnology, there are still countless combinations of genes and DNA to be discovered. So, genetic engineering is the most varied study of our time and should be considered as a career choice, but I don't think it's the best choice for our world over all.