Transgenic plants are the kinds of plants that got their genomes altered through different genetic engineering techniques that could be done on the basis of adding extra genes or foreign genesis or removing specific genes from the plant body. The foreign gene that is being inserted in the plant body may be from different species of plant or from a different kingdom also.

Some types of medicines that are being made by using these types of transgenic plants are termed **biomedicines**. Biomedicines are made by using different physiological and biological principles.

Literature review

The use of transgenic plants for producing different kinds of recombinant proteins for the purpose of industrial and clinical applications has become a type of encouraging substitute. The use of transgenic plants can be seen majorly in the field of agriculture. This is done in order to increase the production of different kinds of crops (Gordon-Kamm et al. 2019). This results in increased amounts of yields. The main aim of the creation of transgenic plants is to introduce a new species of plants that do not grow naturally (Rai et al. 2020). The newly insured gene in the body of a plant is known as a **transgene.**

Use of Transgenic Plants in Order to Create New Age Medicines

The transgenic plant is attracting people's attention from all over the world as it has proved a potent thing to tackle two major potential issues, one is the environmental risks and the other is improving human health (Chekan et al. 2019). Apart from the food products the transgenic plants were used to produce many other things like timber, chemical sectors, and papers.

The newly generated transgenic plants are producing some kinds of new genetically modified crops that are being used to produce recombinant medicines and also some kinds of biofuels, vaccines, antibodies, and plastics (Chen et al. 2019).

Success in the Field in the Production of Biomedicines

There is a number of fields where the use of transgenic plants has produced very successful results. The significance of the transgenic plants in the pharmaceutical industry to produce some kinds of pharmaceutical proteins is the topic of study by different industrial and academic groups throughout the world (Lu et al 2018). The first use of transgenic plants was done in the year 1990 when an actual sized native human recombinant PDP protein was produced. It was named human serum albumin (Rubnawaz et al. 2019). After that, a series of **pharmaceutical products** like vaccines, blood products, antibodies, and hormones were produced from the **transgenic plants.**

The studies of the pharmaceutical industry with respect to genetically modified plants are still in their initial steps in countries like the United Kingdom. One appropriate use of the transgenic plant is used to create a medicine that is used to meet the deficiency of vitamin B12. There are a series of clinical trials that are ongoing in the field of the pharmaceutical industry in the United Kingdom (Wang et al. 2018). The trial is going on in the field of producing Hepatitis B vaccine from the genetically modified lettuce and potatoes. Some other kinds of vaccines such as the vaccine for the inconsistent heat toxins, several, monoclonal antibodies, and some types of human proinsulin are produced by the use of different transgenic crops like maize, cotton, potatoes, rice and several other cereal grains (Ali et al. 2019).

Advantages of Producing Pharmaceuticals Products by Using Genetically Modified Plants

The usage of producing pharmaceutical products by using different genetically modified plants have many prospective dominations and advantages with respect to the traditional ways of producing medicines (Sitther et al. 2018).

Transgenic plants can be used to produce complex polymeric proteins like some kind of antibodies that cannot be expressed by the microbial systems. Transgenic plants can also be used to produce vast amounts of proteins that can be used on the other hand to produce different kinds of medicines (Chekan et al. 2019). The recombinant proteins so formed can be incorporated into the different pharmaceutical products so that different new types of medicines can be produced. These new generation medicines can give life-altering results.

The pharmaceutical industry can see more and more profitable times if the use of transgenic plant interventions can provide more suitable results.

Method

The methodological part puts focus on the data collection methods and also on the data analysis parts. The data was collected by conducting different kinds of **experiments, observations and surveys**. This data collection method is termed the **positivism research philosophy** that has been used in this review article for collecting the data (Gordon-Kamm et al. 2019). The data collection method follows the major steps that are used on any scientific research project and it is based on the conduction of different kinds of experiments and their results.

Different kinds of observational experiments have been conducted to see how the plants are behaving by changing their genes. After changing their genes, proteins made by the plants have been used so that they can be incorporated into different kinds of medicinal purposes. The results so collected are then analyzed for further knowledge. This is the reason for choosing the **experimental data collection method** over other methods (Ali et al. 2019). The methodological section provides extensive results that can prove helpful in making more pharmaceutical products that can be helpful for the scientist to get appropriate results. This is why the above-mentioned procedures have been selected for the research purpose.

Results

Culturing methods

Table 1: Table showing the advantages and disadvantages of culturing methods of different transgenic plants

Advantages	Disadvantages

? Increase the yields of the crops.	? Altering the plant's behavior is affecting the natural growing properties of the plants.
? Gives sustainability to the agricultural sector and the quality of the food (Chekan et al.2019).	? It may be harmful to the environment (Rai et al. 2020).
? Proves to be effective in the production of pharmaceutical products.	? The pharmaceutical products so formed may have some kinds of side effects that can be harmful to human beings.

Antibiotic Susceptibility Testing

Table 2: Table showing the advantages and disadvantages of the vulnerability of the antibodies produced by the use of transgenic plants

Advantages	Disadvantages
? It provides mostly accurate results	? It may be time-consuming
? The process seems to be acceptable in creating new generation medicines.(Wang et al. 2018)	? The environmental factors can hamper the culturing mythos and as a result, the final product may not be appropriate (Gordon-Kamm et al. 2019).

qRT-PCR Testing Techniques

Table 3: Table showing the advantages and disadvantages of qRT-PCR Testing Techniques on the transgenic plants'

Advantages	Disadvantages
? It is a very rapid process	? Contamination in the testing methods can give some altering results.
? Very sensitive toward the detection of DNA and RNA due to its amplification combination techniques (Wang et al. 2018).	? Genes expressed at the low level give very little scope for detection.
? Provides very specific results	? It is not possible to segregate similar kinds of genes.

ELISA Test

Table 4: Showing the advantages and disadvantages of the ELISA test that is used for the production of transgenic plants

Advantages	Disadvantages
? Procedure is very simple to follow.	? Very labour-intensive test.
? Based on the antigen-antibody reaction it gives high specificity(Lu et al 2018).	? High possibility of getting false or negative results (Rai et al. 2020).
? Shows an increased amount of efficiency.	? May results in the formation of instability among the antibodies.

Immunoassay Test

Table 4: Table showing the advantages and disadvantages of the Immunoassay test on the Transgenic Plants

Advantages	Disadvantages
? It is easy to get the desired results in a short span of time.	? Some of the plant samples may prove to be natural inhibitors.
? It is a very cost-effective test (Chekan et al.2019).	? The reactions may be based on teh4 temperature that may give different results (Wang et al. 2018).
? No issues of health hazards have been reported so far.	? A non-specific protein binding process may be seen.

Next-Generation Sequencing Test

Table 5: The table shows the advantages and disadvantages of the next-generation sequencing test

Advantages	Disadvantages
? Gives high-efficiency results	? May include a high rate of getting negative results.
? It is very cheap and less time taking	? Unable to detect the same genes (Gordon-Kamm et al. 2019).
? Provides very rapid pieces of information and data.	? Maybe low insensitivity.

Discussion

Genetically modified plants are being used in every agricultural sector. The genetically modified plants provide high yields, fewer risks and very high-value products (Rai et al. 2020). The usage of producing pharmaceutical products by using different genetically modified plants has many prospective dominations and advantages with respect to the traditional ways of producing medicines.

The data collected from the various experiments show the different types of tests that have been done in order to get transgenic plants ready for the incorporation of the recombinant proteins so produced from them are proving to give positive results. Different kinds of observational experiments have been conducted to see how the plants are behaving by changing their genes. After changing their genes, proteins made by the plants have been used so that they can be incorporated into different kinds of medicinal purposes (Chekan et al.2019). The results so collected are then analyzed for further knowledge.

The test that has been done for further research processes is the ELISA test, the next generation sequence test, antibody susceptibility test, and immunoassay test qRT-PCR test. These are done in order to get appropriate results so that further results can be obtained (Wang et al. 2018). The tests so done are very cost-effective, less time consuming and also provide very sensitive results from time to time. Also, the appropriate use of the transgenic plant is used to create a medicine that is used to meet the deficiency of vitamin B12 which is a series of clinical trials that are ongoing in the field of the pharmaceutical industry in the United Kingdom (Lu et al 2018). The usage of producing pharmaceutical products by using different genetically modified plants has many prospective dominations and advantages with respect to the traditional ways of producing medicines.

Transgenic plants can be used to produce complex polymeric proteins like some kind of antibodies that cannot be expressed by the microbial systems. Transgenic plants can also be used to produce vast amounts of proteins that can be used on the other hand to produce different kinds of medicines. The use of transgenic plants for producing different kinds of recombinant proteins for the purpose of industrial and clinical applications has become a type of encouraging substitute. The use of transgenic plants can be seen majorly in the field

of agriculture. This is done in order to increase the production of different kinds of crops. This results in increased amounts of yields (Wang et al. 2018). The main aim of the creation of transgenic plants is to introduce a new species of plants that do not grow naturally.

The transgenic plants that have been used till now are in the infancy steps as it has produced only a single type of medicine to meet the deficiency of vitamin b12. More interventions are needed in terms of getting more medicines to be produced so that they can help mankind. It is a fact that is known to all scientists that every newly made thing has some kind of advantages as well as disadvantages also (Rai et al. 2020). These pharmaceutical products with different genetically modified plants have much prospective domination and their benefits as well as their importance can be understood while producing medicine through these all plants parts.

Conclusion

The use of transgenic plants that can be used to produce different biomedicines is proving to be life-altering ways as it is giving some high-end results after each and every new experiment. The usage of producing pharmaceutical products by using different genetically modified plants has many prospective dominations and advantages with respect to the traditional ways of producing medicines. Some types of medicines that are being made by using these types of transgenic plants are termed **biomedicines**. Biomedicines are made by using different physiological and biological principles.

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