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The evolution of cotton: all about the best cotton variety

Abstract

The strains of BT bacterium produce approximately 200 different toxins known as BT-Toxins which are harmful for different insects most commonly against cotton bollworms(lepidopteran), butterflies, flies, and moths. So, scientist inserted the gene of *Bacillus thuringiensis* which was harmful for lepidopteran into the cotton crop so that gene produce toxin against lepidopteran and kill the pest and make the cotton crop resistant. we can get the good yield of cotton by using the simple concept of rational plant population which means that we will get the same quantity of cotton as much as we sow the seeds in the earth which can achieved by using the healthy seeds only. Bukhara-8 Variety shows higher resistance towards a salinity soil as compared to C-4727 and Omad varieties as well. cotton show 94% reduction in the feline covid (which is a common cat's viral infection) upon the 2 hours contact with PHMB. that tetraploid (having four sets of homologous chromosomes) cotton has highest fiber quality as compared to other cotton varieties. we can't forget the role of biotechnology in the evolution of cotton because it's the biotechnology which give us BT-cotton or also known as Genetically Modified Cotton or GM cotton.

Keywords: soil salinity, evolution, factors, eco physiological, *Bacillus thuringiensis*

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Introduction

we study the impact of diverse factors on the cotton crop i.e., environmental factors, ecophysiology factors and the effect of cotton pest (lepidopteran). Cotton is an important crop in Pakistan which plays a key role in daily human life and in our country economy as well. Cotton is not a new crop; it is as old as human because scientist found the cotton cloth remnant and cotton ball dating about 7000 years. And it is grown spun and woven to make cloths in Indus valley Pakistan some 3000 years back. Cotton plays a key role in the economy of Pakistan. In this scenario we can't forget the role of biotechnology in the evolution of cotton because it's the biotechnology which give us BT-cotton or also known as Genetically Modified Cotton or GM cotton. Lepidopterans destroy lots of cotton crop in the past before the development of BT cotton. Thanks to biotechnology which give us BT cotton and now we get better cotton production. The evolution of cotton is essential because it plays a key role in our daily life like we must wear cloths which are made up of cotton and cotton also play a key role in the economy of Pakistan.

Study objective

This research conducted to get the superior cotton and to understand the process of evolution.

Material and method

To complete the excellent quality review, we collected data from the top research articles and achieve our aim to write an amazing article on evolution of cotton.

Results and discussion

Evolution and natural history of cotton

According to Wendel, In past the farmers face a big loss of cotton crop due to the cotton pest known as lepidopteran, so scientists turned their attention towards this issue and try to develop different methods to improve the cotton crop at last they develop the Genetically modified cotton which is known as *Bacillus thuringiensis* Cotton which as abbreviated as BT-Cotton. The strains of BT bacterium produce approximately 200 different toxins known as BT-Toxins which are harmful for different insects most commonly against cotton bollworms(lepidopteran), butterflies, flies, and moths. So, scientist inserted the gene of *Bacillus thuringiensis* which was harmful for lepidopteran into the cotton crop so that gene produce toxin against lepidopteran and kill the pest and make the cotton crop resistant.[1]

Rational plant population

According to Ergashovic, we can get the good yield of cotton by using the simple concept of rational plant population which means that we will get the same quantity of cotton as much as we sow the seeds in the earth which can achieved by using the healthy seeds only.[2]

Salinity soil

As we know that the soil has also major effect on the cotton crop a simple formula is that a good soil can give us a better cotton production and in the same way a bad soil can give as a low cotton yield similarly moisture level also follows the same formula.so here a question arises what does bad soil stands for? Bad soil means that it has higher salinity in the soil which give us a poor yield so to get the goo production we must choose the soil which has optimal salinity and moisture level in the soil. But as we know that there is a lot of salty soil around the globe which becomes a major problem because we are getting lowest yield from the salty soil, to solve this issue regarding soil salinity and moisture Ergashovic did research in order to find a variety of cotton which shows resistance towards the soil salinity and moisture, He took three cotton varieties named as Bukhara-8, C-4727 Omad cotton variety and come to conclusion that Bukhara-8 Variety shows higher resistance towards a salinity soil as compared to C-4727 and Omad varieties as well.[3]

Eco physiological factors and hybrid cotton verities

As we know we are trying to get higher yield and improved quality of cotton all the struggle is just to find or develop an amazing cotton variety which shows resistance towards most of factors which result

in low cotton yield and K.A Azamatovna is also working on the same idea just to find a resistant cotton variety which shows resistance towards physiological factors affecting cotton varieties. Yang G et all al so concluded that hybrid cotton variety shows resistant to different Eco physiological factors and microenvironment (is the environment which influence the performance and day to day activities of the firm) as well. Eco physiological factors includes drought, light water soil nutrients etc. and the cotton require an optimal amount of these all but as we know there is lot of land which is rich in water and other soil nutrients and result in low cotton production. To solve this issue regarding cotton, yield The researcher took some varieties of cotton which includes Aqdarya-6, Bukhara-102, Bukhara-8, Bulhara-6 and C-6524. And he comes to a decision after doing the experiment and comparing different cotton verities that all the Bukhara varieties like Bukhara-102, Bukhara-8 and Bukhara-06 are best to grow in the land which has high drought, light, and soil nutrients as well because all these verities show an amazing resistance towards all these factors.[4,5]

Development of antiviral CVC fabric

Today a world is facing a big problem regarding coronavirus disease 2019 which is abbreviated as COVID-19. And there is probability that we can also get corona virus prom the plants in the same way as we are getting it from the animal like mice. So, looking into this problem Wang did a great research and give us a satisfactory result from his studies. He uses an antiseptic known as PHMB abbreviated as Polyhexamethylene Biguanide which has antiviral and antibacterial properties use for cleaning of various things like swimming pools, wounds etc. Because of its amazing properties Wang uses this antiseptic to clean the cotton from covid-19 and gets amazing results. He sees that cotton show 94% reduction in the feline covid (which is a common cat's viral infection) upon the 2 hours contact with PHMB.[6]

Fiber improvement of cotton

Fiber improvement stands for improving the quality of cotton regarding its size, weight etc. To improve the quality of cotton Main D conduct research and comes to know that tetraploid (having four sets of homologous chromosomes) cotton has highest fiber quality as compared to other cotton varieties which are most of the time diploid. Most wild type cottons are diploid but there are five species of cotton from America and pacific which are tetraploids to get the fiber improvement we need to plant tetra ploidy cotton variety in our field.[7]

Cotton biotechnology

The aim of this article is just to get an improved cotton variety which can give us increases cotton production in term of its size and weight so that we can get an abundant cotton in small land in this scenario we can't forget the role of biotechnology in the evolution of cotton because it's the biotechnology which give us BT-cotton or also known as Genetically Modified Cotton or GM cotton. Lepidopterans destroy lots of cotton crop in the past before the development of BT cotton. Thanks to biotechnology which gives us BT cotton and now we get better cotton production.[8]

Conclusion

Scientist inserted the gene of *Bacillus thuringiensis* which was harmful for lepidopteran into the cotton crop so that gene produce toxin against lepidopteran and kill the pest and make the cotton crop resistant. all we can get the good yield of cotton by using the simple concept of rational plant population which means that we will get the same quantity of cotton as much as we sow the seeds in the earth which can achieved by using the healthy seeds only. Out of three cotton varieties named as Bukhara-8, C-4727 Omad cotton variety and come to conclusion that Bukhara-8 Variety shows higher resistance towards a salinity soil as compared to C-4727 and Omad varieties as well. cotton show 94% reduction in the feline covid (which is a common cat's viral infection) upon the 2 hours contact with PHMB. Appreciations to biotechnology which give us BT cotton and now we get better cotton production.

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None.

Conflicts of interest

There are no conflicting interests declared by the authors.

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