DiSSPA STAL – Food Science

Edible Cotton?   SJ Christopher 2016

   Cotton would make a wonderful food if it were not <u>poisonous</u>. Its seeds are rich in high-quality protein and the plant is <u>hardy</u>. However, at the moment, cotton seeds can only be eaten by cattle, whose four stomachs can <u>break down</u> gossypol, the poisonous chemical in cotton plants.

   Nearly eighty countries produce cotton worldwide, and that is enough to feed five hundred million people per year, Texas A&M University researchers say. Cotton seeds contain about twenty-two percent protein and could <u>improve</u> the diets of malnourished people in countries where it is grown, if the seeds were not toxic. Gossypol reduces blood potassium to dangerous levels in humans and can <u>harm</u> the heart and liver of both humans and animals.

   Now Dr. Keerti Rathore and his team of researchers at A&M have <u>devised</u> a way to reduce gossypol levels and make cotton <u>edible</u>. How? 'We silenced the gene that tells the seed to make gossypol,' Dr Rathore said. The new GM cotton seeds can be eaten by humans and <u>livestock</u>, such as chicken and pigs, and may <u>show up</u> in cookies and other foods in the future.

A boll of cotton with the ultra-low gossypol levels.

   Scientists first <u>managed to</u> produce a gossypol-free plant in the 1950s by <u>shutting off</u> the gene that produces the toxin <u>throughout</u> the plant. However, without gossypol to protect the plant, insects and diseases <u>ravaged</u> the cotton. Dr Rathore and his team have developed a way to stop gossypol production in the seeds, while the stems, leaves, flowers and tissues continue to produce it.

   More tests are needed to make sure that gossypol-free cotton seeds <u>meet</u> the WHO's standards for food consumption. Researchers are optimistic about the technique's potential, but need to perform more detailed studies in the next few years, so cotton will not be ready to eat for at least <u>a decade</u>. And remember: don't make a salad from the leaves!

Kara Pamuk for "*The Daily Planet*" 2010

Exercise A: Match the <u>underlined</u> words with their meanings:

1 damage (x2)	6 satisfy (requirements)	11 toxic
2 resistant	7 all over the world	12 block
3 appear	8 farm animals	13 succeed in doing sthg
4 a period of ten years	9 invent	14 to make sthg better
5 it is a food	10 digest	15 in every part of sthg

Exercise B: Answer the questions with complete sentences

1. Who wrote this article?

   …………………………………………………………………………………..

2. When was it published?

   …………………………………………………………………………………

3. What is gossypol?

   …………………………………………………………………………………..

4. Why is it possible for cows to eat cotton seeds?

   ………………………………………………………………………………….

5. What is the proportion of protein contained in cotton seeds?

   ………………………………………………………………………………….

6. Where does Keerti Rathore work?

   …………………………………………………………………………………..

7. Does he work alone?

   …………………………………………………………………………………

8. What have the A&M team done to the cotton seeds?

   …………………………………………………………………………………

9. Which animals can now eat the new GM cotton seeds?

   …………………………………………………………………………………

10. How is gossypol useful to cotton plants?

    …………………………………………………………………………………..

11. How does gossypol affect the human body?

    …………………………………………………………………………………

12. When will it be possible to use cotton seeds in foods ?

    …………………………………………………………………………………..

13. Why is it important not to use the leaves in a salad?

    ………………………………………………………………………………….

14. Would you eat GM foods? Why(not)?

    …………………………………………………………………………………..