

Directions: *There are 2 passages in this section. Each passage is followed by some questions or unfinished statements. For each of them there are four choices marked A), B), C) and D). You should decide on the best choice and mark the corresponding letter on Answer Sheet 2 with a single line through the centre.*

Passage Two

Questions 51 to 55 are based on the following passage.

Scientists have created by accident an enzyme(酶) that breaks down plastic drinks bottles. The breakthrough could help solve the global plastic pollution crisis by enabling for the first time the full recycling of bottles.

The new research was spurred by the discovery in 2016 of the first bacterium that had naturally evolved to eat plastic at a waste dump in Japan. Scientists have now revealed the detailed structure of the crucial enzyme produced by the bug.

An international team then adjusted the enzyme to see how it had evolved, but tests showed they had accidentally made the molecule even better at breaking down the plastic used for drinks bottles. "What actually turned out was we improved the enzyme, which was a bit of a shock," said head researcher Prof. McGeehan, at the University of Portsmouth, UK.

Currently, the enzyme takes a few days to start breaking down the plastic, far faster than the centuries it takes in the oceans, but the researchers are optimistic this can be speeded up even further and become a viable large-scale process.

"What we are hoping to do is use this enzyme to turn this plastic back into its original components, so we can literally recycle it back to plastic," said McGeehan. "It means we won't need to dig up any more oil and, fundamentally, it should reduce the amount of plastic in the environment."

About 1 million plastic bottles are sold each minute around the globe and, with just 14% recycled, many end up in the oceans where they have polluted even the remotest parts, harming marine life and potentially people who eat sea food. "Plastic is incredibly resistant to degradation," said McGeehan. "It is one of these wonder materials that has been made a little bit too well."

Currently those bottles that are recycled can only be turned into opaque fibres for clothing or carpets, while the new enzyme indicates a way to recycle old clear plastic bottles back into new clear plastic bottles.

"You are always up against the fact oil is cheap, so plastic is cheap," said McGeehan. "It is so easy for manufacturers to generate more of that stuff, rather than even try to recycle, but I believe there is a public interest here: perception is changing so much that companies are starting to look at how they can properly recycle these bottles."

Prof. Adisa Azapagic, at the University of Manchester in the UK, agreed the enzyme could be useful but added: "A full life-cycle assessment would be needed to ensure that the technology does not solve one environmental problem—waste—at the expense of others, including additional greenhouse gas emissions."

51. What do we learn from the passage about an enzyme scientists have created?
- A) It was identified during a lab experiment accident.
 - B) It may make full recycling of plastic bottles a reality.
 - C) It was a breakthrough made with persistent efforts.
 - D) It may initiate a radical reform in plastic industry.
52. What does the passage say about the bug that produces the important enzyme?
- A) It has a natural ability to consume plastics.
 - B) It is a bacterium that reproduces at a high rate.
 - C) It is essential to the recycling of plastic bottles.
 - D) It has a chemical structure unknown to scientists.
53. By adjusting the enzyme produced by the bug, the scientists_____.
- A) made it more effective by chance
 - B) discovered an extraordinary chemical
 - C) altered its basic molecular composition
 - D) found its evolutionary process sped up
54. What does Prof. McGeehan say about the recycling of plastic bottles?
- A) Manufacturers are implementing it on an increasingly larger scale.
 - B) It generates huge business opportunities for plastic manufacturers.
 - C) It has aroused persistent interest among the general public.
 - D) Manufacturers are beginning to explore ways of doing it.
55. What is Prof. Adisa Azapagic's advice concerning the application of the enzyme?
- A) Developing technologies to address greenhouse gas emissions.
 - B) Considering the extra cost involved in producing the enzyme.
 - C) Assessing its possible negative impact on the environment.
 - D) Studying the full life cycle of the enzyme as the first step.