④(宮本班)

Toward the Practical Application of Agar Plastics

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Abstract

To solve environmental problems, we focused on developing agar plastics. Agar plastics were prepared, with varying degrees of acetalization, and they were placed in soil and seawater to evaluate their relative degradability.

1　Introduction

Plastics are made from petroleum, and if we continue to use them, there is a fear that petroleum will be depleted by the end of this century. In addition, most plastics are disposable, and plastic that ends up in the ocean causes various environmental problems. We conducted research to solve this problem.

2　Theory and Experiment

Agar plastic was prepared by adding varying amount of formalin (0.0-3.0mL) to agar solution and drying overnight. The infrared absorption spectrum of agar plastic was then measured. In addition, biodegradability was evaluated by putting the prepared agar plastic in seawater and soil.

3　Discussion and Conclusion

It was found that acetylization increased with the increase in formalin added to the agar solution. The highest level of acetylization was found to be for the agar plastic with 0.5mL formalin added. However, this appears to be an outlier, since the rest of the data shows a consistent increase in acetylization with the increase in formalin.　As for the decomposition experiments, we found that all agar plastics decomposed easily in seawater and slowly in soil.

4　References

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5　Key words

Agar plastic　Acetalization　Infrared absorption spectrum　Formalin
Biodegradable