

An Experiment on the Deodorizing Effect of Plum Seeds

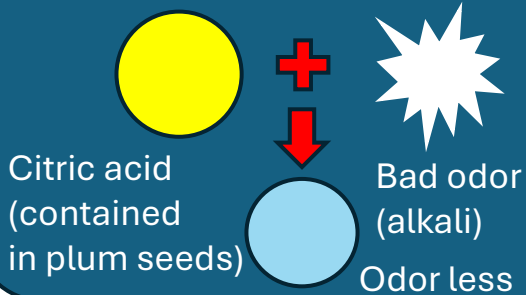
Introduction

Wakayama Prefectural Hidaka High School

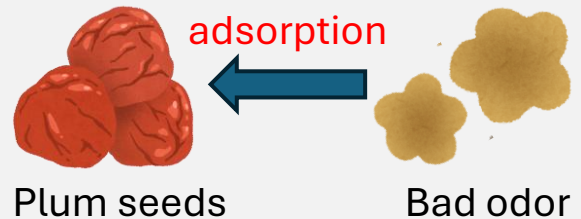
1,600 tons of plum seeds are generated annually as industrial waste in Wakayama.

Information

Chemical Deodorization



Physical Deodorization



Experiment 1: The Differences in Deodorizing Effects by The Heating Temperature

1. Prepare plum seeds that have not been heated, along with seeds heated over a blue flame (approx.1500°C) and a red flame. (approx.800~1000°C)
2. Crush the seeds. (Figure 1)
3. Add two plum seeds to 100 ml of 0.14% ammonia solution and mix.
4. Add two drops of phenolphthalein solution to the aqueous solution of 3.and filter, observing the color change. (Figure 2)



Figure 1: No heating, blue flame, red flame



Figure 2: Control, no heating, blue flame, red flame

Experiment 2: Cat Litter made from Plum Seeds

1. Prepare the litter in 8g, 16g, and 40g sizes.
2. Add these litter to 100ml of 0.14% ammonia solution and mix.
3. Add two drops of phenolphthalein solution to the aqueous solution of 2. and filter, observing the color change. (Figure 3)



Figure 3: Filtered Solution (8g, 16g, 40g)

Analysis

In Experiment 1:

Plum seeds heated in a flame of **approx. 800~1000°C** has the strongest deodorizing effects.

- Not heated area → Chemical deodorization by citric acid
- Heated area → Physical deodorization by the porous structure

Future Outlook

- Consider the method to accurately measure the temperature of the flame.
- Increase the amount of plum seeds.

References

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