Adsorption power of the charcoal

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1. Background

According to previous study, due to the Great East Japan Earthquake, the percentage of radioactive materials in our school has increased.

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First, We tried to study how to remove radioactive material,but it`s not allowed for school studies.

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Therefore, it is attracting attention in the removal of radioactive materials. It was decided to conduct research on charcoal`s adsorption ability.

2. Purpose

To test be which charcoal is better in adsorption and research the cause of difference in adsorption.

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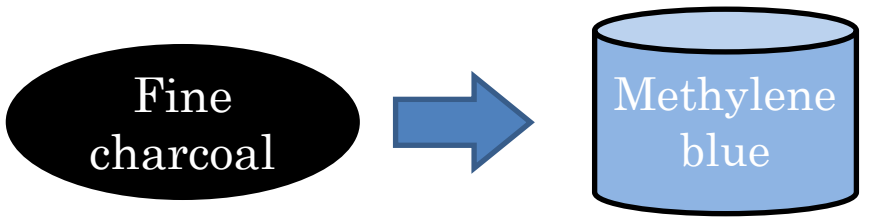
We want to apply this study to daily life and removal of radioactive materials.

3. Materials and methods

Experiment 1



Checking adsorption power of the charcoal

Purpose

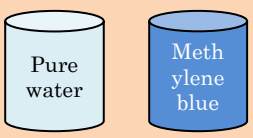
Checking the difference in adsorption power of every charcoal.

1. Using methylene blue solution
（5.2×10＾-5） mol/L.

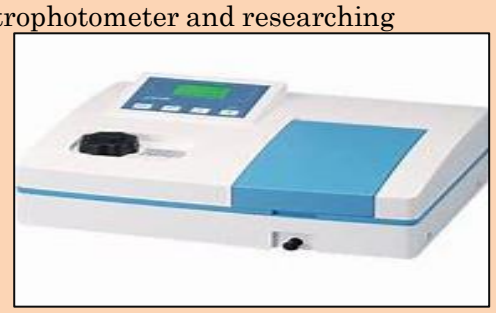
2. Put bincho charcoal, activated charcoal, and walnut`s charcoal into the solution.

3. Mix it for 10 minutes, and leave it as it is for 30 minutes.

4.Using under picture`s spectrophotometer and researching numeric`s change.



Abs: 0.00 2.077



Experiment 2

Observing the charcoal using an electron microscope

Purpose

Checking what is a cause of the difference in adsorption.

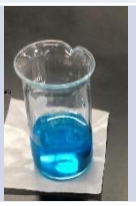
Viewpoint

1.Difference in structure of every charcoal.

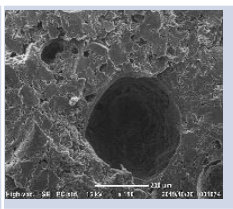
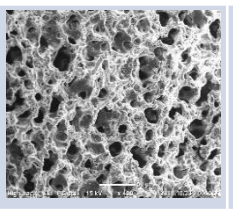
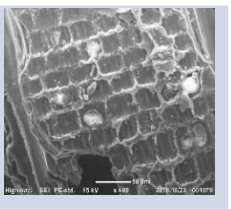
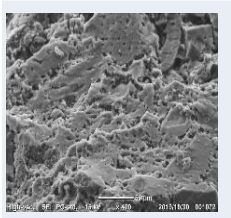
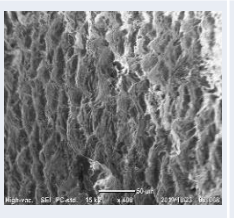
2.Change of the state before and after the adsorption.

4. Result

Table 1 Absorbance of methylene solution after 40

	Pure water	Before	Active carbon	Walnut	BBQ carbon
First	0.000	2.098	0.142	1.046	1.324
Second	0.000	2.061	0.035	1.031	1.126
Third	0.000	2.073	0.059	1.035	1.178
Average	0.000	2.077	0.079	1.037	1.209
Picture					

(*absorbance: compared to pure water.)

	Active carbon ×100	Walnut ×400	BBQ carbon ×400
Before			
After			

5. Consideration

From the table active carbon adsorbed more pigment than other charcoal. Active carbon is 20,000 to 60,000 times larger in size than ordinary charcoal. So it turned out holes become larger when charcoal is carbonized. And this increases the adsorption power.

6. Future work

Use other carbon → Is there any charcoal which is better than active charcoal in adsorption power?

Reuse of the charcoal → Can you reuse the charcoal after having used it, how long can it adsorb it at the maximum?

References

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