

# Urine Reaction Experiment

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**Abstract.** Phenolphthalein solution does not turn red when it comes into contact with urine.

**Keywords.** Urine, Phenolphthalein solution.

## 1 Introduction

Urine contains ammonia [1]. Since phenolphthalein solution turns red when it meets ammonia gas [2], phenolphthalein solution will turn red when urine and phenolphthalein solution meet. It can be hypothesized that a phenolphthalein solution turns red when it comes into contact with urine. In this paper, we check the hypothesis through experiments.

## 2 Material and Methods

The following is a summary of the preparations and procedures required for the experiment. However, since there is no Petri dish, a household dish was used in the experiment.

### Material.

Urine, Phenolphthalein solution, Petri dish.

### Methods.

1. Add 3-5 drops of phenolphthalein solution to the center of the Petri dish.
2. Add 1-2 drops of urine to the phenolphthalein solution in the center of the Petri dish.
3. Observe the color change of the phenolphthalein solution.

## 3 Results and Discussions

Figure 1 is a picture taken with a smartphone during the experiment process. Looking at the Figure 1 (c), it can be seen that the phenolphthalein solution and urine did not turn red even though they met.



(a) This is a picture of when the phenolphthalein solution is dropped into the center of the dish.

(b) This is a picture of when urine is dropped into the phenolphthalein solution in the center of the dish.

(c) This is a picture of when 5 minutes have passed since urine was dripped into the phenolphthalein solution.

Figure 1: Photos taken with a smartphone of the experimental process.

## 4 Conclusions

When we did an experiment, phenolphthalein solution and urine met but did not turn red, so that the hypothesis was wrong. Therefore, we conclude that phenolphthalein solution does not turn red when it comes into contact with urine.

## References

- [1] Park, S. J., & Shin, J. I. (2013). Overview of the formation, components, color, and abnormal findings of urine. *Journal of the Korean Society of Pediatric Nephrology*, 17(2), 29. <https://doi.org/10.3339/jkspn.2013.17.2.29>
- [2] Hildebrand, J. H. (1908). On the “Color Demonstration of the dissociating action of water” of Jones and Allen. *Journal of the American Chemical Society*, 30(12), 1914–1916. <https://doi.org/10.1021/ja01954a012>