

Carolina™ Solution Sheets

# Aceto-Carmine

Learn how to make aceto-carmine and use it to stain chromosomes.

## Materials

Ferric Hydroxide  
Acetic Acid (item #841290)  
Carmine  
Stir Bar  
Amber Bottle  
Magnetic Stir Plate (item #701023)  
Erlenmeyer Flask, 500-mL (item #731030)  
Label

**Don't want to make it yourself?**  
Find aceto-carmine stain at Carolina.com

**Item Numbers**  
841423, 841425

## Procedure

1. Add 1 g carmine to boiling 45% acetic acid; allow boiling for 2 minutes.
2. Allow solution to cool and then filter.
3. To half of the solution, add 3 drops of ferric hydroxide in 45% acetic acid until liquid becomes blush red, but without visible precipitate.
4. Add the remaining untreated aceto-carmine.

### Staining procedure:

1. Tease anthers on a slide gently, and mash.
2. Add 1 drop of staining solution and put on a cover slip.
3. To intensify the stain, heat gently. Do not allow to boil.
4. Observe promptly under a microscope with a light that has passed through a green filter (if possible).

## Notes

- Preparations as written lack permanency. For permanent results:  
Place slide and cover in a shallow dish of 10% of acetic acid until the cover has become loose from the slide. Transfer both slide and cover to equal parts of alcohol and acetic acid. Transfer to mixture of 1 vol. acetic acid to 3 vol. absolute alcohol; then to 1 vol. acetic acid to 9 vol. alcohol; after, transfer to absolute alcohol; finally, transfer to xylene (optional).
- Result should be:
  - o Cytoplasm—Uncolored.
  - o Chromatin—Dark, translucent red (or black if green filter is used).

## Label Information

### Aceto-Carmine

**Caution:** Corrosive and toxic to body tissue

Date Prepared: \_\_\_\_\_

Initials of Preparer: \_\_\_\_\_

Health Risk: 3

Flammability: 1

Reactivity: 1

## Applications

Aceto-carmine is used to stain chromosomes, giving the desired chromosome a red color. This distinguishes the desired chromosome from the matrix, facilitating the observation of:

- Nucleus activity
- Duplication of DNA
- Movement of the desired chromosome

## Reference

Belling, John. 1926. The iron-acetocarmine method of fixing and staining chromosomes. *Biological Bulletin* 50:160–2.