

Student's Card 2 Renewable Keratin wastes for use in metal mining

Module 2

Objective: WOOL KERATIN FLOCCULATION AND PRECIPITATION

Introduction







After the extraction of keratin by using a NaOH solution, you need to flocculate the protein that is in the solution by using different substances even those that are used in everyday life. Finally through the processes of decantation and drying it will be possible to see the keratin powder.

Necessities



List of materials/tools

- Test tubes
- Test tube rack
- Small colander
- Pipettes
- Petri dishes
- Gloves
- Safety Glasses

Reagents	Formula		Quantity (g) or Concentration (M)
Keratin's solution in NaOH solution			1.0/0.5 N solution
Ethanol	$\text{CH}_3\text{CH}_2\text{OH}$		
Acetone (Dimethyl ketone)	$\text{CH}_3\text{-CO-CH}_3$	 	
Citric acid (2-Hydroxypropane-1,2,3-tricarboxylic acid)	$\text{C}_6\text{H}_8\text{O}_7$		6%
White wine vinegar			
Lemon juice			

Lab Procedure

- Filter the lemon juice.
- Label five test tubes and then add 10ml of different solutions to each of the tubes (Ethanol, Acetone, Citric acid, Vinegar, Lemon juice).

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- Add, drop by drop, in each test tube 1/2 ml of the extraction solution and complete the table below.
- Then pour the content of each test tube in a Petri dish and let it evaporate until it is completely dried.
- Observe on a black background and complete the table with these results.

Additional Safety Notes



Using NaOH, wear gloves and safety glasses

Results:

	ETHANOL	ACETONE	WINEGAR	CITRIC ACID	LEMON JUICE
Appearance of the protein in the solution					
Appearance after drying					



Questions/Quiz

1. What is meant by flocculation?
2. What may be the cause of keratin's different behaviour in the various solutions?