Renewable keratin wastes for use in metal mining

A. Main topics
- Keratin as waste, “mining tool” and source of raw materials (RM),
- Exploration and RM resource assessment;
- Recycling and substitution

B. targeted audience
- 14-19 years old students

C. Key concepts
- Elements of organic chemistry, amino-acids, monomers, proteins
- Basics of textile classification and wool characteristic.
- Elements of bio-technology and bio circular economy.

D. Experimental activity
- This toolkit consists of a set of different experiments:
  - extraction of keratin from wool using extraction solution;
  - keratin flocculation using a protein denaturating agent;
  - recovery of keratin powder by decantation or centrifugation;
  - recovery of heavy-metals from water

E. Toolkit material
- Protocol with the description of the experiments
- Pedagogical dossier with background information, experiment descriptions, figures, presentations etc.
- Multimedia i.e. videos with processes that use the concepts seen during the experimentation.

F. RM Tutors
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