Student Thesis Competition (STC) Season 5 on
"Re-imagining Urban Rivers"

SUSTAINABLE WATER BODY REJUVENATION USING RED COWPEA STARCH-BASED ADSORBENT MATERIAL FOR ECOLOGICAL RESTORATION OF POLLUTED PONDS(TALAB) IN HIMACHAL PRADESH

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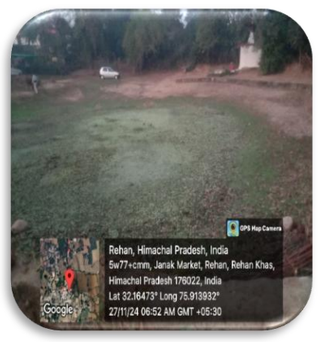
Course Discipline- MSc. Food Science and Technology

STUDY AREA

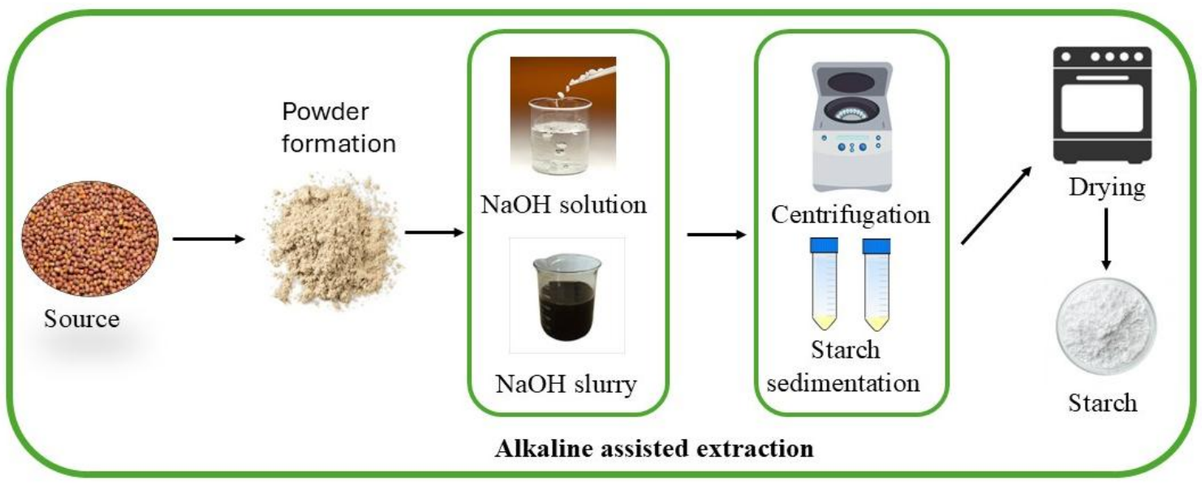


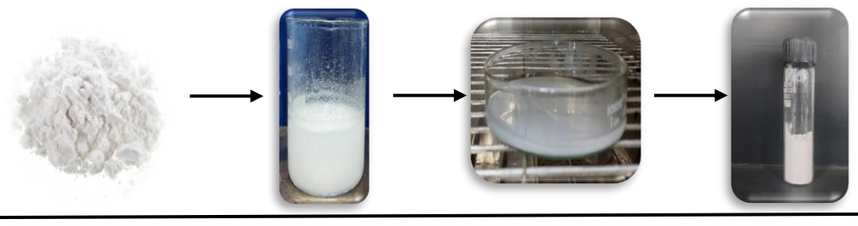
POLLUTED POND

SATELLITE VIEW

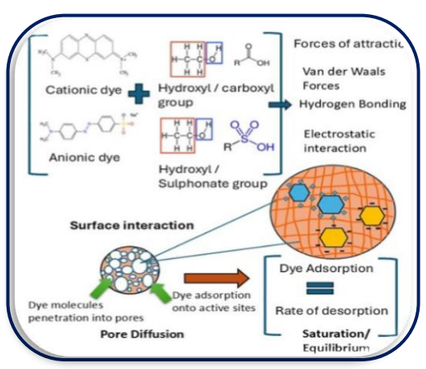
- ✓Extraction and modification of starch from red cowpea through Green technology
- ✓Development of starch-based adsorbent material
- ✓Rejuvenation of Polluted Water Bodies (Talab) with Natural Materials for Sustainable Aquatic Ecosystem Renewal

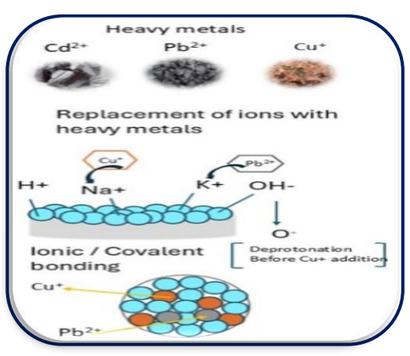
EXTRACTION AND MODIFICATION OF STARCH

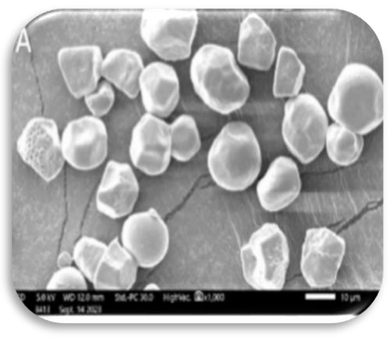




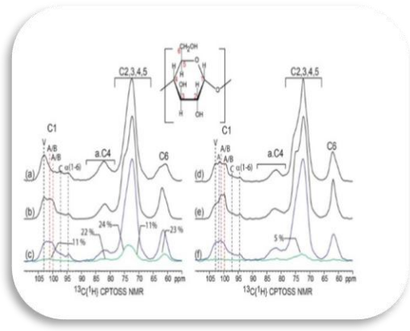
MECHANISM ON THE SURFACE OF ADSORBENT



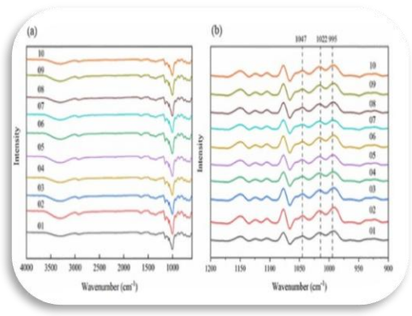




SEM

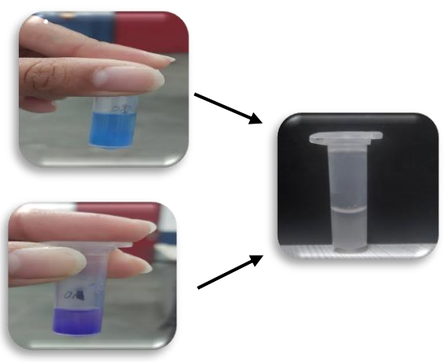


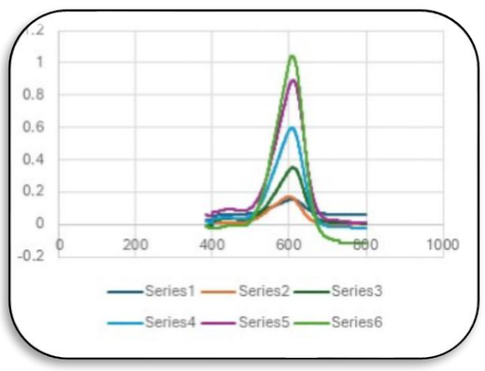
NMR



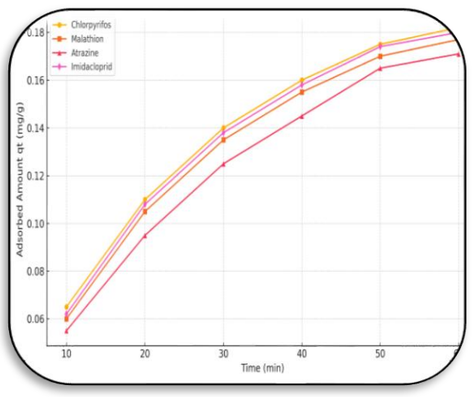
XRD

MECHANISM OF ACTION OF ADSORBENT MATERIAL

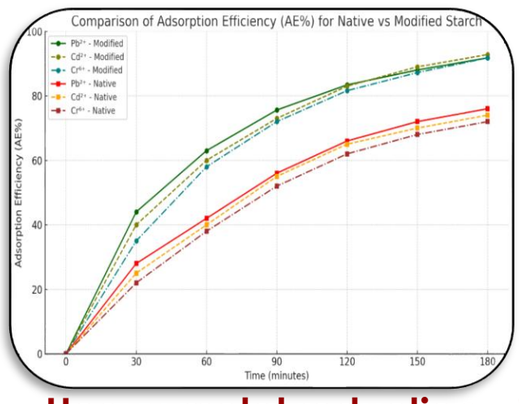




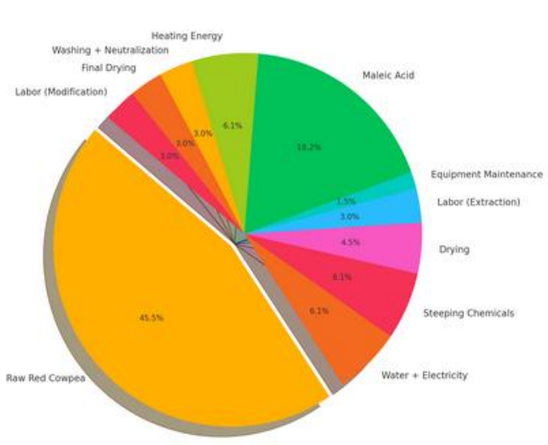
Dye reduction with time



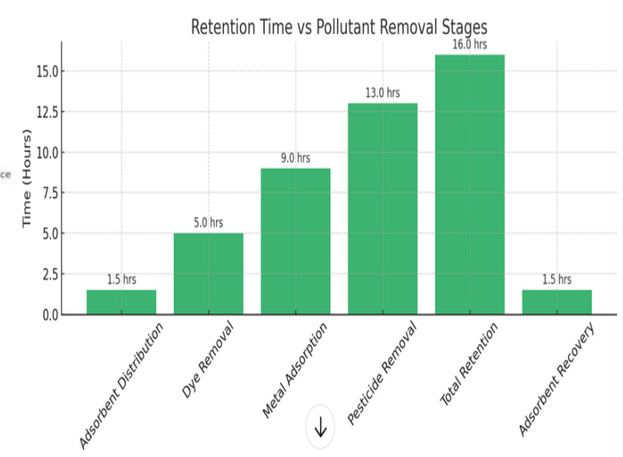
Pesticides removal with time



Heavy metal reduction with time



Adsorbent Distribution and Recovery each take 1.5 hrs.
Total Retention Time required is up to 16 hrs.



Retention time vs. Pollutant stages