

051106T4APB

APPLIED BIOLOGY LEVEL 6

APB/OS/AB/CR/12/6/A

Perform Pharmacological and Toxicological Techniques

March/April 2025



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

PRACT MENT

INSTRUCTIONS TO ASSESSOR

1. Assess the candidate as the practical progresses observing the critical areas
2. You are required to Mark the practical as the candidate perform the tasks
3. You are required to take video clips at critical points
4. Ensure the candidate has a name tag and registration code at the back and front

OBSERVATION CHECKLIST

Candidate's Name & Registration Code			
Assessors Name & Registration Code			
Venue of Assessment			
Date of Assessment			
Items to be Evaluated: <i>Please award Marks as appropriate. Give a brief comment on your observation.</i>	Marks Available	Marks Obtained	Comments
TASK 1: Extract Toxins from Plant Samples			
1. Wore PPEs • Face mask • Disposable gloves • White laboratory coat • Low heled closed shoes <i>(Award 1 Mark or 0)</i>	4		
2. Weighed 10g of the provided plant sample <i>(Award 1 Mark or 0)</i>	1		
3. Cleaned the leaf sample with distilled water <i>(Award 1 Mark or 0)</i>	1		
4. Drained off the excess water from the plant samples <i>(Award 1 Mark or 0)</i>	1		
5. Placed the weighed sample in a clean pestle <i>(Award 1 Mark or 0)</i>	1		
6. Crashed the plant sample using a pestle to obtained a thick consistency	1		

(Award 1 Mark or 0)			
7. Added 30 ml of distilled water and continued grinding until a uniform paste is achieved (Award 1 Mark or 0)	1		
8. Lined the filter funnel with a filter paper - Folded the filter paper correctly - Placed the filter paper in the funnel - Ensured that the filter paper lines the wall of the funnel (Award 1 Mark or 0)	3		
9. Filtered the mixture to obtain the filtrate - Placed the filter lined with a filter funnel over a beaker - Poured the paste onto the filter - Allowed the filtrate to drip (Award 1 Mark or 0)	3		
10. Labelled the extract and set it aside for further testing (Award 1 Mark or 0)	1		
Sub-Total 1	17		
TASK 2: Isolate and Identify Toxins Through Basic Laboratory Techniques: Heating and Using alcohol (Ethanol)			
11. Transferred about 20 ml of the extract into a Boiling tube (Award 1 Mark or 0)	1		
12. Heat the extract in a water bath at about 60 °C for about 10 minutes	1		

(Award 1 Mark or 0)			
13. Observed and noted any changes. • Color change • Precipitation formation • Gas production Refer to appendix 1 (Table A) (Award 2 Marks for each Mark or 0)	6		
14. Cooled the sample (Award 1 Mark or 0)	1		
15. Obtained 5ml of the extract and placed in a clean test tube (Award 1 Mark or 0)	1		
16. Added 3 ml of ethanol and shook the mixture (Award 1 Mark or 0)	1		
17. Allowed the mixture to settle (Award 1 Mark or 0)	1		
18. Separated the Top Layer • Pipetted the upper layer using a dropper • Placed it in a clean test tube and labelled (Award 1 Mark or 0)	2		
Sub-Total 2	14		
TASK 3: Test for the presence of the following: Phenolic compounds, Glycosides and pH			
19. Tested pH of the extract • Placed 2ml of the extract in a clean test tube • Dipped pH indicator strip/Litmus paper (Blue and Red litmus	8		

paper) into 2 ml extract in a test tube • Compared the strip to the universal chart • Noted the results <i>(Award 2 Marks or 0)</i>			
20. Tested for Glycosides • Placed 2ml of the extract in a clean test tube • Add 4 ml of Fehling's solution (A and B). • Heat the mixture in a water bath. • Noted changes: Brick-red precipitate indicates presence of glycosides <i>(Award 2 Marks or 0)</i>	8		
21. Tested for Phenolic Compounds • Placed 3 ml of extract in a test tube • Add 4 drops of ferric chloride • Noted color change Refer to Appendix 2 (Table B) <i>(Award 2 Marks or 0)</i>	6		
Sub-Total 3	22		
Post-Practical Procedure			
22. Cleaned the work surface • Disposed of the wastes in appropriate bins • Cleaned the apparatus used • Handed over the apparatus to the	6		

technician in charge (Award 2 Mark each)			
23. Confidence throughout the practical (Award 3 Marks or 0)	3		
Sub-Total 4	9		
GRAND TOTAL	62		
ASSESSMENT OUTCOME			
The candidate was found to be: Competent ☐ Not yet Competent ☐ (Please tick as appropriate) (The candidate is competent if the candidate is at least 50%)			
Feedback from the Candidate:			
Feedback to the Candidate:			
Candidate Signature		Date:	
_____		_____	
Assessor's Signature		Date	
_____		_____	

Appendix 1

Table A: Heating the Extract

	Yes (√)	No (X)
Color change	√	
Precipitation		√
Gas production	√	

Appendix 2

Table B: pH, Glycosides & Phenolic Compounds

Test		Observation	Inference
Glycosides		Red-brown	Present
Phenolic compounds		Purple, blue brown color	Present
pH	Red litmus	Based on the color change observed	
	Blue litmus	Based on the color change observed	