

Date Name Group

Lab report from the practical lesson on biochemistry

Topic: Toxicology

Task 1: Thin-layer chromatography of selected drugs

Principle of TLC:

Results and evaluation:

Record appearance of each spot after each detection step. Measure distance of each spot as well as the solvent front from the start and calculate the R_f value.

	<i>Furosemide</i>	<i>Diclofenac</i>	<i>Tramadol</i>	<i>Mirtazapine</i>	<i>Metoprolol</i>
Appearance under UV					
Marquis + heat					
Mandelin + heat					
Dragendorff + heat					
Distance of spot from start (a)					
Solvent front from start (b)					
$R_f = a/b$					

Conclusion:

Were all drugs detected?

Task 2: Proof of ethanol by reaction with potassium dichromate

Principle:

Result/Observation:

Task 3: Estimation of ethanol in blood by means of gas chromatography – evaluation of chromatographic trace

Principle:

Results and calculation:

(h_{et})_{CAL} (h_{et})_{SAM}

(h_{is})_{CAL} (h_{is})_{SAM}

C_{st}. (written at the chromatogram)

$$c_{et} \text{ in the sample} = \frac{\left(\frac{h_{et}}{h_{is}} \right)_{SAM} \times \left(\frac{h_{is}}{h_{et}} \right)_{CAL} \times c_{st}}{k} = \dots\dots\dots$$

Conclusion:

Task 4: Detection of ethanol with breathalyzer (Demonstration)

Principle:

Result/Observation:

Task 5: Demonstration of rapid immunochromatography test for detection of drugs in urine

Principle:

Result/Observation:

Task 6: Spectrophotometric examination of hemoglobin derivatives

Principle:

Results:

From each recorded spectrum, find the absorbances for selected wavelengths as directed by the following table. Fill these values to the table. Find also all the absorption maxima and assess whether they match the theoretical expectations:

<i>Wavelength (nm)</i>	<i>O₂-Hb</i>	<i>deoxy-Hb</i>	<i>MetHb</i>	<i>CO-Hb</i>
500				
510				
520				
530				
540				
550				
560				
570				
580				
590				
600				
Color				
Maxima (nm)				

Use a piece of graph paper to draw the absorption spectra of the hemoglobin derivatives, sign your graph and attach to the report. Alternatively, recreate the spectra in Excel, and send the graph together with your report.

Conclusion:

Do the recorded spectra match the theoretical predictions?