Spect. Deter. Of [X] in unknown sample & Calculation of ε

Introduction:

- **What is**:

X?

$X_{\lambda max}$?

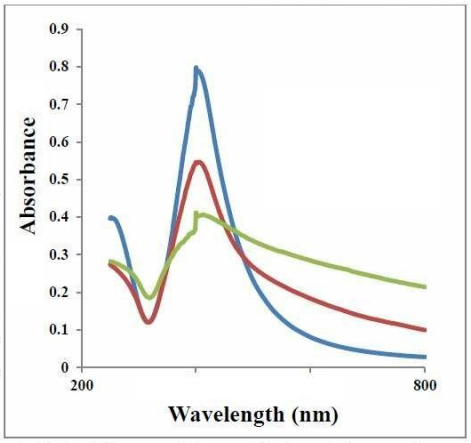
ε?

Experiment's objectives?

X:

X is an unknown element (metal), In this application the trainee is supposed to find out what it's Identity by determination of it's λ_{max} .

$X_{\lambda max}$:



ε:

ε is the molar absorptivity, also known as the extinction coefficient of the sample. It is a unique physical constant of the chemistry of the sample that relates to the sample's ability to absorb light at a given wavelength. Like path length (b) and sample concentration (c), ε is also directly proportional to Absorbance.

Experiment's objectives?

1-Find the Identity of [X] in the unknown sample.

2- Determine the unknown sample concentration.

3- Calculate the ε Value.

Expermental:

1-Prepare (100ppm) of (X) from the suitable raw material using **tap water** in (50ml) volumetric flask.

2-Prepare next (all in 50ml Volumetric flasks):

No	1	2	3	4	5	Blank	Unk.
Flask							
$X_{(ppm)}$	5	10	15	20	25	NIL	NIL

3-Prepare the Blank solution.

4-Move to the next Laboratory and find $X_{ID,}$ $[C_X]$ & ε of the unknown sample.

Results:

No	$C_{(ppm)}$	Absorbance
Blank	nil	0
1	5	A_1
2	10	A_2
3	15	A_3
4	20	A_4
5	25	A_5
Unknown	?	?

Calibration Graph: