

Aim: Estimate the concentration of dye (Rhodamine B) in waste water sample using UV-visible Spectrophotometer.

Procedure:

Preparation of solutions:

Prepare the following solutions with the help of the table below:

S.No	Volume of Rhodamine-B Stock Solution (ml)	Volume of distilled water (ml)	Total Volume (ml)	Final Concentration ( $\mu\text{M}$ )
1	1.0	49.0	50	1.0
2	1.5	48.5	50	1.5
3	2.0	48.0	50	2.0
4	2.5	47.5	50	2.5
5	3.0	47.0	50	3.0

Absorption Measurements:

- ① Switch on the UV-1900 spectrophotometer.
- ② Record full spectrum (450-650 nm) of the first Rhodamine-B solution ( $1 \mu\text{M}$ ), and note down the absorbance at 554 nm.
- ③ Similarly, record the absorbance spectra of all other solutions and note the absorbance values at 554 nm.

## Results:

① slope of the plot =

② concentration of unknown solution =

Table-1: Absorbance with varying concentration  
Rhodamine-B

S.No	Rhodamine-B ( $\mu\text{m}$ )	Absorbance at 554nm
1	1.0	0.1056
2	1.5	0.1705
3	2.0	0.2294
4	2.5	0.2295
5	3.0	0.3869
6	unknown	0.3250