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IWMA

DYE DEGRADATION USING LOTUS LEAVES

(Nelumbo Nucifera)

SRI SANKARA SENIOR SECONDARY SCHOOL, ADYAR

CATEGORY : SENIOR

CODE NO: MS – 07

Project by,
G.Vaishali
Std: XII

MENTOR:
Mrs. M.Lakshmi
PGT, Biotechnology

❑ PURPOSE OF THE PROJECT

- Over 10,000 dyes are used in industries, among them about 10% of the dyes used in industries are lost as effluents in industries.
- It is necessary to reduce the effluents from industries.
- Adsorption is widely used for dye removal from waste water.
- Activated charcoal has been frequently used as an adsorbent. Due to high cost of activated charcoal an alternative low cost adsorbent has to be used.
- In this study lotus leaves were used as an adsorbent.

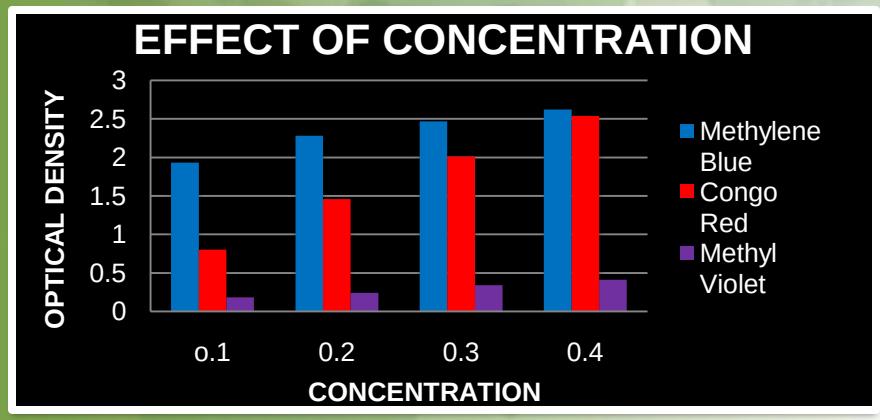
❑ OBJECTIVE

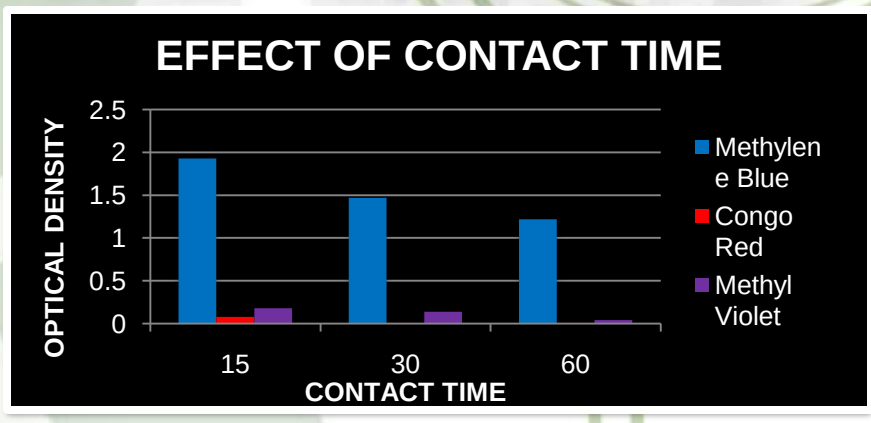
- Study the degradation of dye using natural adsorbent like lotus leaf powder.
- Study the adsorption potential of lotus leaf and study the effect of initial concentration and contact time.

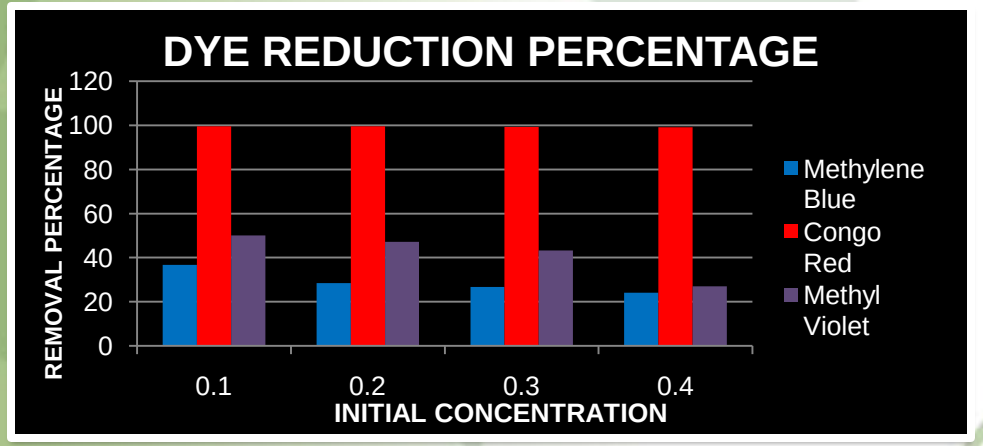
❑ PROCEDURE

- Standard solutions 0.1% solution of Methylene blue, Methyl Violet and Congo red was prepared.
- Lotus leaves were collected, washed with distilled water to remove impurities and dried at low temperature (<120˚C) for 48 hrs to remove moisture content.
- After drying process, lotus leaves were ground to fine powder and sieved through 600 μ sizes.
- The adsorbent used in the present research work prepared by treating lotus leaves with 0.5 N concentrated H_2SO_4 followed by heat treatment at 150˚ c in an oven for 30 hours.
- The treated leaves wash with distilled water to remove acid and dried at 80˚ C for 10 hrs.
- The suspensions were mixed at predetermined periods (15-240 min) at constant temperature (25°C) in a shaker at 120 rpm until equilibrium was reached and the absorbance of dye solution was determined by the Spectrophotometer.

❑ RESULT AND OBSERVATIONS







❑ CONCLUSION

- Decolourisation of dyes from industrial effluents is one of the important areas of concern in waste water treatment.
- Dye removal by adsorption techniques using lotus leaf powder has been done in our work.
- The parameters were taken into account were initial concentration of dye and contact time.
- This project on Dye Degradation will have an impact on most environmental issues in effluent treatment and also would profoundly be used in dyeing industries.

❑ ACKNOWLEDGEMENT

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THANK YOU