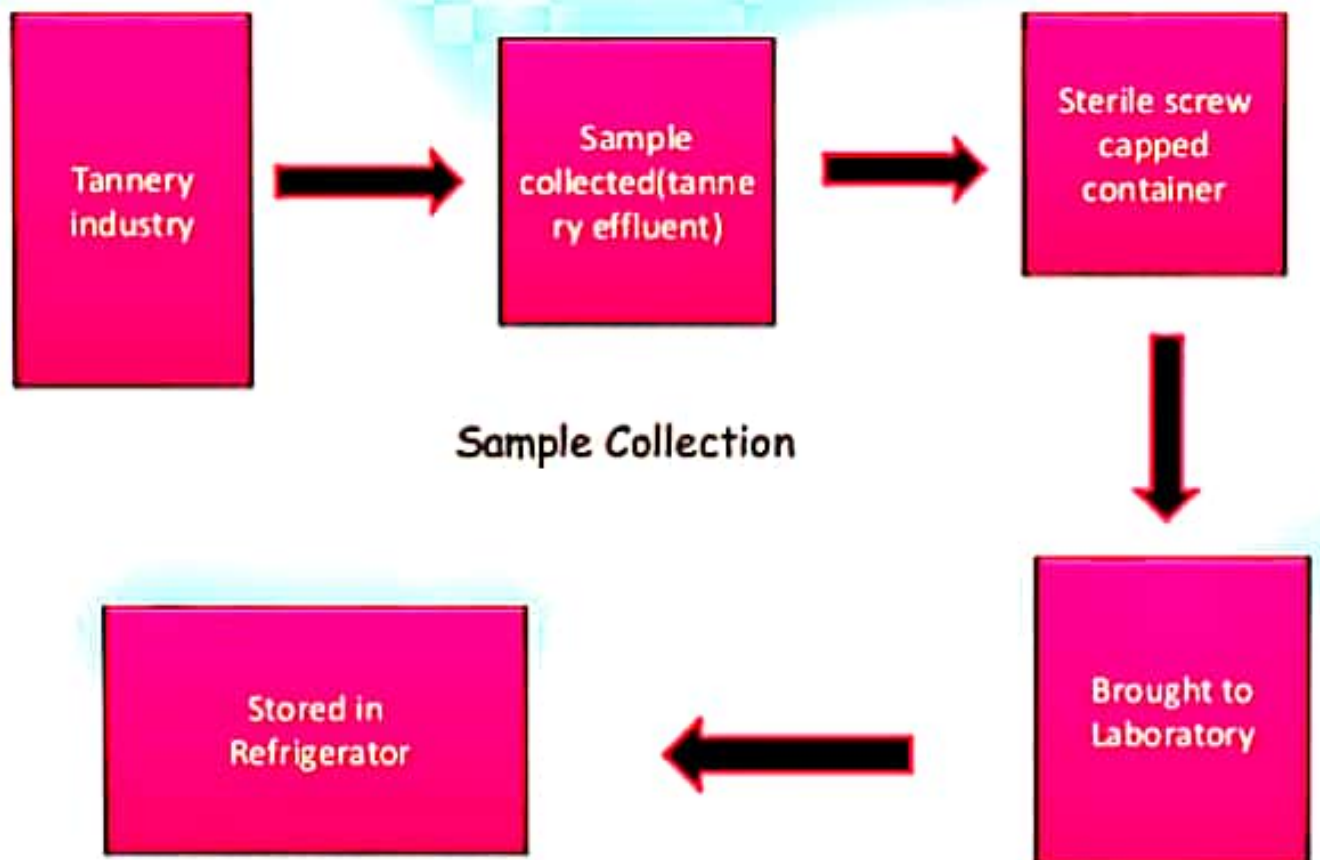


Materials and methods



CONT. Estimation of Physico-chemical parameters of tannery effluent.

Physico-chemical parameters of tannery effluent including

- pH
 - turbidity
 - conductivity
 - total solids
 - total dissolved solids (TDS)
 - TSS
 - sodium
 - potassium
 - nitrate-nitrogen
 - salinity,
 - biological oxygen demand (BOD)
 - chemical oxygen demand(COD)
- were analyzed by standard methods recommended by APHA.

Cont. Effluent treatment using *Eichhornia crassipes*

- Approximately 20 L raw effluent from tannery brought to the Laboratory in plastic containers.
- Experiments were set up in plastic tubs in triplicate.
- Ten L of 50% effluent were prepared and transferred to plastic tubs 40cm diameter in bottom and 60cm diameter in top.
- The plant used for the effluent treatment study was an emergent floating wetland macrophyte *Eichhornia crassipes*.



Cont.

- It was identified by local flora
- The *Eichhornia crassipes* was introduced in to the experimental tubs
- Then maintained in open place for 12-13 h of photo period.
- After 20 days the plant was removed from the experimental setup
- Treated effluent was analyzed for the Physico-chemical parameters.

Discussion

❖ Effluent water contain excessive, alkalinity may cause eye irritation in humans and chlorosis in plant



❖ color of tannery effluent was changed from pale yellow to light dirty colour and the change of foul odour to clay soil odour after treatment.

❖ After the treatment of effluent with *Eichhornia* plant the Physico-chemical parameters were changed viz., pH 8, alkalinity 98 mg/L, BOD 4 mg/L, COD 268 mg/L, TDS 2600 mg/L, organic carbon 0.950 mg/L and nitrate 0.09 mg/L. On other hand, pH of the tannery effluent was 11 and the concentration was 920 mg/L for BOD and 3980 mg/L for COD.

Cont.

- ❖ The pH of the water sample of the treatment set was reached the neutral range after they treated with *Eichornia* sp.
- ❖ Water hyacinth is a floating macrophyte whose appetite for nutrients and explosive growth rate has been put to use in cleaning up municipal and agriculture wastewater
- ❖ Generally the root type and contact time during treatment were the main key factors leading the process.

- ❖ This study reported that water hyacinth to be a promising candidate for Phytoremediation of wastewater polluted with Cu , Pb , Ni , Zn, and Cd however lead and nickel were poorly accumulated in water hyacinth
- ❖ Non living biomass of water hyacinth dry roots showed ability to accumulate all metals

Summary & Conclusion

- ❖ Industrial waste water discharged was contaminated with a wide range of toxic chemicals and pathogens causing serious health problems in human health and environment.
- ❖ Aquatic plants are very effective in removing heavy metals from polluted water.
- ❖ Plant assimilation of nutrients and its subsequent harvesting are another mechanism for pollutant removal.
- ❖ Low cost and easy maintenance make the aquatic plant system attractive to use.
- ❖ *Eichhornia crassipes* can also remove other toxins, such as cyanide, which is environmentally beneficial in areas that have endured gold mining operations.

Conclusion

- ❖ The *Eichhornia* plant reduce pH 10 to 8, TDS 4500 mg/L to 26 00 mg/L and other parameters also reduced 17-28%.
- ❖ Phytoremediation is suitable and low cost technology to
❖ remove or degrade the pollution from industrial effluent like tannery effluent.
- ❖ The *Eichhornia Crassipes* is an extraordinary tool for effluent treatment if it is properly concentrated on Phytoremediation technology.
- ❖ it could be utilized the benefits and safe of our environment