CONCLUSION

Results from this study show that disposal of effluents cause a serious threat to ground and surface water recourses. Based on the analysis and comparison of the data obtained with the results allowed the determination of wastewater constituents. GC-MS spectral studies of nine samples of three selected sites of Sachin industrial area shows that the presence of various aromatic, aliphatic, heterocyclic, cyclic, aromatic cyclic and aliphatic cyclic compounds. Lack of knowledge on the ecotoxicological properties of many of these contaminants represents a major concern due to the uncertainty in possible effects they could cause on the aquatic environment and human health after their release to surface waters. These organic pollutants can cause several diseases like hypoglycemia, skin irritation, headache, reproductive disorders and even cancer. Thus, the investigation clearly indicated that treatment of industrial wastewater should be practiced before throwing it out.

Algae, *Daphnia* and fish are ecologically important organisms in the aquatic food chain and are an abundant bio-resource in aquatic systems. The current research revealed that all of the industrial effluent from three different sites of Sachin industrial area from May 2014, September 2014 and January 2015 tested had a growth-inhibiting effect on *P. subcapitata*, immobilization and reproductive effect on *Daphnia magna* and acute adult fish toxicity and embryonic toxicity on Zebrafish, *Danio rerio* The effluents prevented algal growth, normal mobility and reproduction of Daphnia magna and hatchability of embryos to Zebrafish at very higher dilutions.

Findings indicate for industrial wastewater higher physico-chemical parameters, heavy metals and presence of possible organic compounds may lead to toxic effect to studies organisms. The properties of organic substances and type, physico-chemical parameters and concentration of heavy metals in comparison with their individual toxic levels are important factors that affect the overall toxicity of the industrial effluents. This finding can deepen our understanding of the usefulness and effectiveness of toxicity assessment. In most cases, individual toxic substances in effluent may be difficult to detect accurately. Nonetheless, current ecotoxicity tests could assess the overall impact of pollutants in the wastewater on aquatic ecosystems.
Conclusion

The present research also builds up a basic framework to acquire more information about the prevalence and levels of mutagenic agents in industrial effluents. Furthermore, bacterial reverse mutation test (Ames test) being simple, quick and relatively easy to perform can be used as an initial screening test to assess the suitability of industrial effluents to be released into the environment. There was some indication of higher toxicity while there was clear indication of mutagenic effect was observed in the industrial effluents from site 3 of May 2014 and site 1 and 2 of January 2015 in the tester strains TA98, TA100 and TA102 both in the absence and presence of metabolic activation system. Our findings suggest that TA98, TA100 and TA102 were sensitive towards the industrial effluents and showed considerable mutagenicity. This is however, a warning indication and if no measures are taken to rectify this ever increasing mutagenic contamination in the environment it would lead to dire consequences. Even though a number of bioassays are available for genotoxicity testing, this assay was chosen because of their simplicity, wide usage, low cost and wide acceptance for such monitoring studies. They can be used for day to day screening of complex environmental samples. They can thus be used as important pre-screening bioassays.

It is urgently required for continuously monitoring of effluents and to take necessary actions for proper treatment of the wastewater prior their disposal to water bodies and to save natural water resources in Sachin industrial zone.