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# Separation Techniques

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## Significance of separation and identification techniques in solving crimes, many problems, scope and suggestions in forensic field

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Forensic science is a very big discipline and every step requires separation of useful evidences from the non-relevant and ample of other interferences found around crime scenes. The forensics is typically based on chemical sciences which in part has been applied for physical, biological and chemicals fields' altogether. When we talk about the rising scenario of crimes, criminals are evolving with newer tricks to explore crime by making explosives and using chemicals and gases etc creating mass destruction, producing biological threats via bacteria (anthrax), viruses etc. Whenever a crime has occurred it left some visible clues and some hidden evidences. The most important part of a forensic analyst begins at the crime-scene to collect all such evidences that may at least helps to provide relation of the evidences with the crime and also to overrule the relation. After collection of relevant material it requires to establish its connection with the scenario. Whatsoever is the material, it has to identify and for identification separation of desired part needs lots of physical, chemical and instrumental analysis. Separation from biological matrix and from the crime scene debris is quite tedious, but separation techniques using various equipments and their implementation in the working field can help to collect useful and acceptable information to provide justice in the criminal and accidental cases. To sort all these answer we hereby explains the wider use of some of these instrumental techniques and their rightful implementation in getting exact evidences is explained with some case studies. In this scenario the use of TLC, HPTLC, GC-MS, HPLC, LC-MS-MS, IC-MS, SEM, XRF, ICP-MS, Microwave Solvent extraction techniques, Automated Solvent Extraction Machine, PCR etc is explained. Similarly in achieving the goal to solve the cases, types of problems encountered in analysis with their solutions and results are explained with specific case studies showing detection of poisons, explosives, drugs and metabolites. Some of latest existing requirements explaining scope and suggestions will be encountered to combat the crime rate.

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