Drugs screen using thin layer chromatography of basic illicit drugs essay sample

The majority of evidence submitted to crime labs comes from drug-related crimes. Often, this evidence includes unidentified powders that may be illegal drugs. In order to prosecute individuals for possession of Illegal substances, it is necessary for forensic scientists to positively identify any suspected drugs submitted to the laboratory. In addition, forensic toxicologists must determine the identity of drugs found In the bodies of drug-overdose victims. Although Illegal substances can cause verdose, people also overdose on common over-the-counter (OTC) drugs, like aspirin, when attempting to take their own lives.

Thin-layer chromatography (TLC) is one technique used to identify unknown drugs. Chromatography is simple to perform, is straightforward to interpret, and works equally well for legal and illegal substances. The experiment uses TLC to identify the active ingredients in some common OTC painkillers. Introduction: bring to court individuals for possession of illegal substances, it is essential for forensic scientists to positively identify any alleged drugs submitted to the laboratory.

Forensic toxicologists must establish the identity of drugs found in the bodies of drug-overdose victims. Although illegal substances can cause overdose, people also overdose on familiar over-the-counter drugs, like aspirin, when attempting to take their own lives. Thin-layer chromatography (TLC) is one technique used to identify unknown drugs. Thin layer chromatography is a simple and inexpensive technique that is often used to find the purity of a synthesised compound or to indicate the development of a chemical compound.

The wanted result is that each component of the deposited mixtures is moved a different istance up the plate by the solvent. As a forensic application TLC can be found very useful to many aspects, one of which being to determine the composition of unknown drugs. Method: Supplied with the following solvents, solvent A- ethyl acetate: methanol: ammonia and solvent B- ethyl acetate: methanol (98: 2). A set of individual drug standards were supplied, these standards were codeine, diazepam, imipramine, ketamine, methadone, prazepam and an unknown sample A.

In this procedure, a small quantity of solutions of the mixture to be analysed was deposited as a small spots on a TLC plate using a glass capillary spaced at 2. cm from the bottom of the plate, spotted small spots as possible so that better separation can be given, the TLC plate consists of a thin layer of silica gel. The gel constitutes the stationary phase. The plate is then placed in a developing tank containing a small amount of solvent which is the mobile phase.

The solvent then moves up the plate via capillary action and carries the deposited substances along with it at different rates due to the differential solubility of each of its components. Once the solvent reached 7. 5cm, the plate was then removed from the tank to allow the plate to dry in the fume cupboard. Once the plate had dried, the plate was then placed in the second tank that contained solvent B, leaving it to reach 12. 5- 15cm. After this was done, the plate was removed from the tank to allow the plate to be able to dry and then it was placed in the fume cupboard.

The Once the plate has totally dried, it is then examined under an ultraviolet light and any spots that have been formed are then circled. As this was done the plate is then taken back to the fume cupboard and sprayed with acidified dragendorf, more spots should then develop, after this has been done and llowed to dry then the plate is sprayed again with acidified Iodoplatinate reagent more spots should emerge, after all this has been done the substances can be identified from their Rf values.

The Rf values for the substance is the ratio of the distance that the substances have travelled to the distance that the solvent travelled up the plate. Since these basic drug standards have different molecular structures they act together erratically with the mobile and stationary phases in thin layer chromatography. The result is that each component travels at different rates resulting in a separation f each component, hence each individual spot on the TLC plate represents a solvent within the mixture.