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Paper chromatography experiment report

Owusu Asante
United Care Roland Clinic, Gambia

The technique helps in analyzing, identifying, purifying and quantifying unknown separable mixtures. The mobile phase is either a liquid or gas which moves the solvent through the stationary phase during the process. The stationary phase is a liquid or solid component that is fixed in a place for the procedure. Paper chromatography works majorly on capillary attractions. The capillary attraction which depends on adhesive and cohesive forces allows the mobile phase to move up the stationary phase due to created surface tension interaction from the forces. The major types are the paper chromatography, thin layer, gas chromatography, column chromatography, high performance liquid chromatography, paper chromatography and thin layer chromatography. There are several applications of paper chromatography and other main types of chromatography techniques. This technique is applicable in pharmaceutical industries, hospitals, forensic science, environmental science and manufacturing plants. This report describes the experiment conducted using paper chromatography to identify an unknown mixture. This will be done by comparing four known amino acids with the two unknown mixtures to identify the unknown mixtures. The experiment will also help to master the technique and analyze the movements made by both unknown mixtures and the known amino acids. Materials gloves, goggles, lab coat, filter paper, toothpick, ninhydrin solution, mixtures are to be identified. The laboratory procedures entail different steps that eventually lead to identification of the unknown mixtures. This procedure is divided majorly into stationary phase preparation, mobile phase preparation and chromatograph development. For the stationary phase preparation, the required markings are made on the paper for identification and creation of baseline. The baseline marks are the 1.7 cm from the shorter left edge and 1.0 cm from the bottom of longer edge. Known amino acid symbols are mark on the paper. Spotting of the known four amino acids and two unknown mixtures are then done using separate toothpicks which will help to prevent contamination. Mobile phase preparation was done by pouring 10 ml of solvent mixture in a 400 ml of Berzelius beaker while the chromatography development was done after the filter paper is already dried.

clinicunited@gmail.com

Simultaneous determination of three gliptins by HPLC-UV

Sena Caglar Andac
Istanbul University, Turkey

Diabetes is a disorder of the metabolism mostly seen as a combination of inherited or environmental factors and resulted with over increase of blood glucose level (hyperglycemia), the prevalence is increasing day by day in Turkey and in the world. Dipeptidyl peptidase-4 inhibitors (DPP-4s), gliptins, are a new class of drugs for oral hypoglycemics and used for the treatment of type 2 diabetes. Sitagliptin, vildagliptin and saxagliptin are the members of the gliptin drugs which are available in the market in Turkey. The advantages of gliptin drugs are differ from oral hypoglycemic drugs used in the treatment of type 2 diabetes like sulphonylureas, biguanids, α-glucosidase inhibitors and meglinids by oral implementation due to its non-peptide structure, and less side effects to the gastrointestinal system since the incretin receptors are not affected directly. Practical, selective and sensitive methods are demanded for the determination of sitagliptin, vildagliptin and saxagliptin from tablets alone and in combination with metformin and not many methods are available in the literature. A fast and simultaneous HPLC method was developed for the determination of these drugs in tablets and biologial fluids. Thermo Ultimate 3000 HPLC was used for the method development. Separation was achieved on a Gemini C18 (4.6x250 mm, 5u) HPLC column with a mobile phase combination of methanol:ortho phosphoric acid, in gradient elution. Analytes were detected both on 225 and 212 nm wavelengths. The developed method will be applied to biological samples and validated.

senacaglar@yahoo.com