

Six months activities report in Lyon

17, 01, 06 – 29, 06, 06

Abstract:

During six months of my residency in Lyon. I studied about analytical toxicology especially the methods of drug and poisons analysis by chromatography and spectroscopy. First I studied the theory of different kind of chromatography (Liquid chromatography and gas chromatography) and spectroscopy and I performed practically some analysis by gas chromatography. I also learned the method of extraction (Liquid-Liquid and Solid-Liquid extraction) of the analyte, sample preparation for chromatographic analysis and preparation of Gamme for a quantitative chromatographic analysis. My other activities are:

- Participation in some lectures of professor GUITTON.
- Participation in some laboratory work of students.
- Study of French language.

Details:

First Two months:

(17, 01, 06 – 20, 03, 06)

I arrived to France at the **16, 01, 06**. After my arrival, according to professor GUITTON advice I started the study of chromatography theory. During the first month I study the theory of chromatography in books and in internet and I translated some topics to Persian. During the second month, I do some practical works in toxicology laboratory of Lyon sud hospital. The summary of my practical activities are:

Practical works:

- 1- Recognition of Gas chromatography different compartments.
- 2- Method of sample injection in Gas chromatography.

- 3- Practical work with split, splitless injector and description of split injection by professor GUITTON.
- 4- Qualitative and quantitative analysis of meprobamate in Gas chromatography.
- 5- Study of variation in peak size and shape, from sample injection in different time.
- 6- Internal standard and its importance in quantitative analysis.
- 7- Method of sample preparation for calibration of standard curve.
- 8- Quantitative measurement of unknown sample by equation of calibration curve.
- 9- Extraction of meprobamate from human serum by liquid-liquid extraction method.
- 10- Method of analysis in HPLC.

Other activities:

- Study of French language in ALLIANCE FRANCAISE.
- Participation in some lectures of professor GUITTON.
- Participation in some presentations about analytical toxicology.

Second month's activities report:

21, 03, 06 up to 10, 05, 06

- study the principle and theory of liquid chromatography such as:
 - Adsorption chromatography
 - Ion exchange chromatography
 - Size exclusion chromatography
 - Affinity chromatography
- Study the theory of spectroscopy such as:
 - Ultra violet spectroscopy (UV-spectroscopy)
 - Infra red spectroscopy (IR- spectroscopy)
 - Mechanism of electron excitation and vibration
 - For 4 days I practically work with spectrometer. I performed the quantification of paracetamol and propranolol.
- I started the analysis of Malathion and Parathion in biologic fluids (especially in urine and blood) by gas chromatography with Nitrogen Phosphor Detector (GC-NPD).
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Another activity:

Study of French language and participation in some practical work (TP).

The last two months activities:

10, 05, 06 - 29, 06, 06

In third two months of my study in Lyon, I start practical work with gas chromatography coupled with Nitrogen Phosphor Detector. After discussion with professor GUITTON, I start the quantification of malathion and parathion in blood and urine. The procedure of my study during this two month is like below:

- Searching about a perfect chromatographic method for quantification of malathion and parathion by gas chromatography- Nitrogen Phosphor Detector.
- Searching about method of malathion and parathion extraction from blood and urine.
- Searching about perfect internal standard for malathion and parathion.
- Injection of malathion and parathion with different solvents (chloroform and dichloromethane).
- Test of malathion, parathion, fenitrothion, chloroform and dichloromethane purity.
- Analysis of malathion, parathion and fenitrothion by 11 different methods (method 1, 2, 3, 4, 5, 6, 8, 9, 10, 11 and 13) to separate the malathion, parathion and fenitrothion's peak from one another and to determine their retention time .
- Injection of different concentration of parathion (with fenitrothion as an internal standard), to make calibration curve.

I also visit Amiens city (for 9 days), the abstract of my trip to Amiens is:

- Participation in French Analytical Toxicology Society (SFTA).
- Quantification of ethanol in blood by enzymatic method.
- Quantification of ethanol in blood by distillation method.
- Visit of Cerba Pasteur laboratory and study about Liquid-Liquid extraction, Liquid-solid extraction and analysis of kidney stone by IR spectrometry.
- Visit of some historic place of Amiens, chateaudun, san ganta and Paris.

At last I am cordially grateful of respectable professor Jerome GUITTON's kindness, patient and cooperation. Pr. GUITTON really explains me a lot of things concerning the theory and practical usage of chromatography and spectroscopy.

I am also grateful of respectable Madam Dominique MARCEL for her full cooperation during my residency in Lyon.

With best regards

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