QUESTÃO 1

The comprehensive two-dimensional gas chromatography (CG×CG), introduced by J. B. Phillips in 1991, has been extensively applied to solve complex problems of separation.

A) Describe the instrumental configuration of a GCxGC system.

B) What are the advantages of the GC×GC in comparison with the multidimensional gas chromatography (GC-GC) and the gas chromatography (GC)?

QUESTÃO 2

There are several approaches to improve the liquid chromatography efficiency. Discuss the effects of the decrease of the particle size in such columns as well as the use of particles superficially porous (porous shell).

QUESTÃO 3

Define the *peak skewing* effect in a mass spectrum. Discuss the main instrumental parameters that define a quadrupole mass spectrometry used in gas chromatography and how it is possible to minimize the *peak skewing* observed in a scan mass acquisition.

QUESTÃO 4

The use of mass spectrometry instruments with triple quadrupole analysers is an approach indicated to quantification and confirmation procedures in trace levels.

A) Name at least three ionization methods frequently used.

B) Classify the Q1, q2 and Q3 regarding time dependency and space dependency.

C) Name at least two gases usually used in the q2 to foment fragmentation.

QUESTÃO 5

The software Microsoft Excel is an electronic sheet very helpful in the routine of a chemical laboratory. Name at least three applications of this tool in the routine work

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