Solubility study of drugs and development of dissolution of dissolution tables assay.


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Abstract
Aiming to improve the solubility of medicines, assessed the solubility of zidovudine, efavirenz and nevirapine in different fisiologic solutions and compare the compound with a cocrystal sample through shakeflask method and analyse by High Performance Liquid Chromatography (HPLC).

Key words:
Solubility, Medicine, Cocrystals

Introduction
The solubility concept is related with a maximus amount which a substance can dissolve in a liquid. Each drug presents a single way to dissolve and binding with yours solubility that have influence in a biodisponibility of the medicine. (1)

The improvement of solubility, associated a parameters of compositions of formulation, it would imply in a improvement of solubility, which it affects the biodisponibility. (1)

Of all modification of medicines to improve the solubility, the cocrystallization has been the preferred methodology, yet with modification of the physio-chemical properties. (1)

Because of the particularity of two substances in only one constituent, the result of this combination is the increase in solubility when it is compared to the two separate molecules.

Medication in tablet form undergoes interference from different pHs from its administration until to the part of action which emphasizes the importance of the solubility test. ANVISA recommends shakeflask as a method of choice for the determination of equilibrium solubility. For this, pHs 7.4; 6.8; 5.8; 4.5; HCl. (1)

Results and Discussion
For the “shakeflask” method were used 4 media, phosphate buffer pH 7.4; 6.8; 5.8; buffered pH 4.5 and 0.1M HCl solution to simulate the different physiological media. Zidovudine, efavirenz, nevirapine and the combination producing cocrystal with zidovudine-efavirenz, zidovudine-nevirapine and zidovudine-nevirapine were added to the shaker and maintained for 48 hours per 100rpm.

Standards and samples were analyzed by HPLC and the results compared. The following graphs indicate the increase in solubility for the Cocristal samples.

Conclusions
Comparing patterns with the Cocystal samples there was increase in the solubility being the expected result for the molecules of Cocystal. It is also noted that in the process of formation of the Cocystal, the emergence of the new molecule brings with it a new equilibrium of solubility generated by the union between the two precursor molecules.

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