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An Overview on Hyphenated Technique IR-Microscopy

Nikhil Sharma*, Amardeep Ankalgi, M. S. Ashawat

Pharmaceutical Analysis and Quality Assurance, Laureate Institute of Pharmacy, Kathog

*Corresponding Author

ABSTRACT

A Hyphenated technique is combination or coupling of two different analytical techniques with the help of proper interface. Hyphenated technique is not always the combination or coupling of two different techniques it may be the coupling of separation or detection techniques also called double hybrid for e.g., IR-Microscopy. FT-IR is the most used techniques for the critical functional groups and their identification. Due to the usage of focal plane array detectors, this technology has advanced to a new imaging technique called IR-MICROSCOPY. It allows us to do high resolution measurements in a large section of sample areas within a very short time span and the results are evaluated on the basis of easily comprehensible images which can be evaluated easily. Microscopes having mirror optics have been developed that allow not just a visual viewing but also for infrared spectroscopic analysis of a sample. Due to the distinct levels of morphologic heterogeneity in cells and tissues the spatial resolution in a given IR imaging setup strongly affects the character of the infrared spectral patterns obtained from the biomedical samples. Spatial resolution is an important factor in IR Imaging. A new computational procedure which is suitable to improve the spatial resolution in IR imaging is required for the proper identification of the samples. Furthermore, techniques like 3D-FSD can be applied to increase the spatial resolution of the IR-MICROSCOPY.

Keywords: hyphenated techniques, IR-MICROSCOPY, FT-IR, IR-imaging, spatial resolution

