

## **A Non-Destructive TeraHertz System and Method for Capsule and Liquid Medicine Identification**

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**Abstract :** The medicine and drugs has in the past been manufactured to the final products and then used laboratory analysis to verify their quality. However the industry needs crucially a monitoring technique for the final batch to batch quality check. The introduction of process analytical technology (PAT) provides an incentive to obtain real-time information about drugs on the production line, with the following optical techniques being considered: near-infrared (NIR) spectroscopy, Raman spectroscopy and imaging, mid-infrared spectroscopy with the use of chemometric techniques to quantify the final product. However, presents problems in that the spectra obtained will consist of many combination and overtone bands of the fundamental vibrations observed, making analysis difficult. In this work, we describe a non-destructive system and method for capsule and liquid medicine identification, more particularly, using terahertz time-domain spectroscopy and/or designed terahertz portable system for identifying different types of medicine in the package of capsule or in liquid medicine bottles. The target medicine can be detected directly, non-destructively and non-invasively.

**Keywords :** terahertz, non-destructive, non-invasive, chemical identification

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