

Integrated Virus Detection

Multiple viruses can be detected concurrently using the Integrated Virus Detection System (IVDS). *Integrated Virus Detection* describes this technology and provides many examples of applications including a chapter on viruses found in honeybees with descriptions of seasonal and yearly variation. This straightforward technology can be used to detect known, unknown, and unsequenced viruses collected from environmental and other complex biological sources.

This book summarizes more than 10 US patents issued for the invention of the IVDS, which is the common name of the electrospray-differential mobility analyzer method. The IVDS is powering mankind's ability to rapidly detect, measure, and monitor viruses as well as virus-like particles. Three facts make rapid detection possible: virus size, which ranges from 20 to 800 nm; disparity in each virus species' particle size thus allowing size data to be used for detection and preliminary identification; and the fact that virus particle density is distinct from other nanoparticles.

The IVDS can ascertain the absence of virion particles, thus presenting compelling evidence of a true negative, which is useful in verifying decontamination and other processes. In addition, large numbers of samples may be processed in an automated fashion, providing an excellent means to prescreen them for judicious targeting of subsequent tests such as PCR or the discriminating method for identifying microbes, which is mass spectrometry proteomics.*

The book is helpful to anyone interested in virus detection, especially in situations where many viral types may coexist.

**Identifying Microbes by Mass Spectrometry Proteomics* (CRC Press 2013)

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