

## **Spectral analysis of HIV drugs for acquired immunodeficiency syndrome within modified non-invasive methods**

Nigmatullin R., Baleanu D., Al-Zhrani A., Alhamed Y., Zahid A., Youssef T.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

---

### **Abstract**

In this study a chromatographic separation of active ingredients for four drugs namely Combivir, Kaletra, Valcyte and Viramune was performed on thin layer chromatography (TLC). Their spectra were analyzed for acquired immunodeficiency syndrome by using the Fourier transform infrared spectroscopy spectra combined with the new procedure of the optimal linear smoothing. Fourier transform of the second type was applied as the Fitting function based on some significant set of frequencies for the smoothed signals. The obtained results show that the proposed method is efficient and easy to apply in extracting of a hidden information from signals corresponding to the four investigated drugs.

---

### **Keywords**

Chromatographic separation, Fourier transform infrared spectroscopy, Lamivudine, Lopinavir, Nevirapine, Ritonavir, Valganciclovir, Zidovudine