

**THz Spectroscopy in Observation of Spectral Differences in Various Pharmaceutical Substances****Ivana Wurmova**

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This study deals with quantitative analyses of different solid-state dosage forms of pharmaceutical substances using terahertz spectroscopy. Within the study, the procedure of sample preparation into homogenous tablets was developed. The tablets were prepared as

a mixture of API (active pharmaceutical ingredient) and matrix-powder polyethylene (PE) or powder polytetrafluoroethylene (PTFE, teflon), both transparent in terahertz region.

In this study, there were compared solid-state forms of pharmaceutical substance prepared in different mass ratios and at different pressure that were used for preparation.

For more detailed spectral analyses, the special temperature cell was used and the samples were measured at the liquid nitrogen temperature – more absorption features occurred because of a reduction of hot transitions from populated energy levels at 293 K. Evaluation of the measured spectra made it possible to obtain general spectral characteristics.

Measured substances were Aripiprazole (used to treat schizophrenia and bipolar disorder), Ibuprofen (nonsteroidal anti-inflammatory drug used to treat pain) and Ambroxol (drug that breaks up phlegm, used in the treatment of respiratory diseases associated with viscid or excessive mucus).

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