The determination of masses of components in physical mixtures by NMR method

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Pharmaceutical medications are used in our society everyday – sometimes we started to be medicate in our prenatal life. It is often in the form of a compressed powder and is a physical mixture of a pharmacologically active ingredient and various excipients. The most important component of medicines is the active pharmaceutical ingredient (API), which causes a pharmacological action in the patient's body, i.e., restoring, improving or altering the physiological functions. The amount of active ingredient in a particular drug is crucial information in pharmacology, as it determines whether the drug will help the patient to recover their health or, in case of exceeding the safe dose, will harm the patient.

Other components of the medicine are called excipients. They do not affect the patient's condition, but make it easier to take the active substance. Knowing their amount in drug intake is not as important as knowing the amount of the active substance. What is intriguing that we can obtain this knowledge using Nuclear Magnetic Resonance Relaxometry.

The purpose of the research was to check the ability of quantitative determination of the composition of mixtures of two substances: active pharmaceutical ingredient and excipient. To do so, magnetization recovery of pure ofloxacin, pure polivinylopyrolidone and their physical mixture in various proportions was measure.

Results give promising information about abilities of Nuclear Magnetic Resonance Relaxometry.

References:

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