

# A study of the formation of magnetically active solid dispersions of phenacetin using atomic and magnetic force microscopy

Usmanova L., Ziganshin M., Gorbachuk V., Ziganshina S., Bizyaev D., Bukharaev A., Mukhametzyanov T., Gerasimov A.  
*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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## Abstract

© 2017 Journal of Advanced Pharmaceutical Technology & Research | Published by Wolters Kluwer-Medknow. A lot of pharmaceutical substances have a poor solubility that limits their absorption and distribution to the targeted sites to elicit the desired action without causing untoward effects on healthy cells or tissues. For such drugs, new modes of delivery have to be developed for efficient and effective delivery of the drug to the target site. Formation of magnetically active solid dispersion of such drugs could be a useful approach to addressing this problem because they combine targeted delivery and good solubility. In this work, the distribution of superparamagnetic nanoparticles in the solid dispersion of polyethylene glycol with average molecular weight 950-1050 g/mol and phenacetin was studied using atomic force and magnetic force microscopy. The distribution of nanoparticles was found to be uniform in studied composites. Magnetically active solid dispersions may find application in the production of the capsulated drug delivery systems with enhanced solubility parameters.

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## Keywords

Atomic force microscopy, magnetic force microscopy, magnetic nanoparticles, phenacetin, polyethylene glycol, solid dispersion

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