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HIGH-INTENSITY ULTRASONIC ACTION ON THE GELS MATERIALS

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The action of the focused ultrasound (1 MHz, pulse duration 60 ms) of intensity from 3.5 up to 400 Wt/sm² on the agarose gels (pure gel and its two modifications) was experimentally studied. The waves transmitted through a sample of gel in a direction of the radiator axis and waves scattered perpendicularly axis in a focal plane of a radiator were registered. Variations in the waves propagation from linear up to strongly nonlinear, including cavitation and not thermal destruction of structure, were observed. Disturbance of medium was shown in effects of self-induced modulation of wave transmitted through a sample and occurrence of great amplitude scattered waves. The effect of attenuation rise under increasing of intensity of ultrasound was observed in pure agarose gel. Such effect has not been observed in samples which have been modified by complexes nanoparticles. The features of generation of subharmonics in the agarose gels under ultrasound action was also investigated.