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ABUNDANCE OF MICROPLASTIC CONTAMINATION IN WROCLAW'S RESIDENTIAL TAP WATER: PREVALENCE, MORPHOLOGY, AND CHEMICAL COMPOSITION OF EMERGING POLLUTANTS

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In the modernized world, there has been a lot of emphasis focused on microplastics as new emerging contaminants in aquatic ecosystems. However, there hasn't been much research done on the topic of microplastic pollution in tap water up to this point. Tap water in Wroclaw is declared safe for drinking by higher authorities. More than 45% of Wroclaw residents drink tap water. Thus, the purpose of this investigation was to find out whether microplastics were present in tap water of Wroclaw. 40 tap water samples were collected in various areas of Wroclaw. Tap water included varying amount of microplastics, ranging from 200 ± 355 particles L−1. In most of the tap water samples, particles smaller than 70 μm strongly predominated. Moreover, tap water samples contained fragments, fibers, and spheres based on the morphology of these particles, with fragments being the most prevalent morphotype in the majority of the samples. The primary components of the microplastics in these particles were polyethylene and polypropylene, however FTIR spectroscopy demonstrated that these particles found in tap water were made of 12 different compounds. According to this study, drinking water purification plants may have to deal with the issue of microplastic contamination in tap water in Wroclaw because of the possible eco-toxicological impacts on consumers.