



Extraction of water-soluble compounds from soils according to ANPA/APAT guidelines using the 3200M ultrasonic bath

In the laboratory of Environmental Chemistry and Toxicology (Department of Environment Health Sciences) of “IRCCS Istituto di Ricerche Farmacologiche Mario Negri” in Milan, researchers are studying the impact of environmental pollutants on human health and on the environmental receptors. The SONICA 3200M ultrasonic bath, currently supplied to the laboratory, is a very useful tool in the preparation of soil leachates according to the ANPA (2000) and APAT (2002 and 2004) guidelines which will be then analyzed by *in vitro* toxicological assays on human cells or ecotoxicological assays. The large tank of the instrument allows the simultaneous housing of more reaction chambers, generally consisting of 100 or 250 ml glass flasks, depending on the amount of sample to be extracted. In this way, in addition to the simultaneous processing of multiple samples, it is possible to obtain a comparable extraction efficiency among the samples processed in the same series, ensuring the possibility of comparison. The large tank also allows the insertion of blocks of synthetic ice to cool the temperature of the water in the bath. Using the same technique, the SONICA 3200M was also used to obtain aqueous leachates of earth and rock from mechanized tunneling, comminuted solid waste and ashes while, coupled with organic solvents (ethanol, methanol, acetone:hexane mixture), it was used for extraction of organic pollutants from waste shredding, earth and rock from excavation, especially when the use of high temperature extraction (soxhlet) is not suitable to preserve the integrity of the sample or of the analyzed pollutant (for example PAHs are sensible to temperature > 40°C).

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