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Comparative characterization of urinary calculi using structural and vibrational studies

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In this study, seven human urinary stones were collected from Istanbul, Turkey. They labeled S1 to S7, their XRD, FT-IR, FT-Raman and EDX spectra as well as SEM images have been recorded to determine their chemical compositions, morphologies, crystal structures, and crystallite sizes. XRD and vibrational (FT-IR and FT-Raman) analyses indicate that S1 is apatite and S2 contains both calcium oxalate monohydrate and apatite, S3-S7 are composed of calcium oxalate monohydrate. The ratios of organic and inorganic contents of the stones have been determined by their thermogravimetric analyses and these analyses also demonstrate characteristic peaks for the dehydration and the decomposition of calcium oxalate and apatite. The present characterization study is especially useful for the future classification studies of renal studies needed for treating urinal diseases.

Biography

Mustafa Kumru is currently a Professor and Head of Physics Department at Fatih University, Faculty of Sciences and Literature, Department of Physics, Turkey. In 1978, he completed his BSc from Physics Department of Ege University, Turkey. In 1985, he completed his PhD from Firat University, Elaziğ-Turkey. In 1992, he was an Associate Professor of Atomic and Molecular Physics at Inter University Council of Turkey, Ankara. In 1997, he became a Professor and Board of Fatih University, Istanbul-Turkey.

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