# Annual effective dose due to ingestion and inhalation of radon in water samples from public fountains in municipality of Kuršumlija, Serbia

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In the present study, the water samples were taken from public fountains in rural area municipality of Kuršumlija, in southern part of Serbia. Sampling of water from public fountains began subsequently according to establishment role and analyzed by alpha spectrometric method using the system (RAD7 RAD $H_2O$) (DURRANGE Co.). Values of radon concentration in water ranged from 4.4 Bq $l^{-1}$ to 22.4 Bq $l^{-1}$, with mean value of 13.8 Bq $l^{-1}$. As can be seen, the radon concentrations in water samples from this region were well below the range prescribed by the WHO – 100 Bq $l^{-1}$. The annual effective dose due to ingestion of radon in water samples is varied from 0.03 mSv $y^{-1}$ to 0.16 mSv $y^{-1}$, with mean value of 0.1 mSv $y^{-1}$, due to inhalation of radon in water samples is varied from 13.44 μSv $y^{-1}$ to 62.72 μSv $y^{-1}$, with mean value of 39.09 μSv $y^{-1}$. Annual effective dose ingested by stomach due to consummation of water varied from 0.003 mSv $y^{-1}$ to 0.019 mSv $y^{-1}$, with mean value 0.01 mSv $y^{-1}$. Annual effective dose received by lungs due inhalation of radon released from water ranged from 1.61 μSv $y^{-1}$ to 7.53 μSv $y^{-1}$, with a mean value 4.72 μSv $y^{-1}$. Since the values of annual effective dose in investigating region are found below the recommended limit, hence it can be concluded that the areas are safe for health hazard point of view.

**Keywords:** Radon concentration, ingestion dose, inhalation dose, radiological risk