

Radon detection in the drinking water supply of Nablus city, Palestine

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Abstract :

Introduction: Radon gas is the second cause of lung cancer and is found naturally in rock, soil, and water. The objective of this study is to determine the radon level in the drinking water in Nablus city and to compare it with world standard level.

Methods: Samples were taken from 4 wells and 5 springs that supplied Nablus city residence with water. For each source, 3 samples were analysed by using RAD 7 device which manufactured by Durrige company. Each sample analysed for 4 cycles and the average for them was taken. Finally the average for each source was calculated. We also took 3 samples from tap water for each region of the 7 regions of Nablus city according to the division of Nablus municipality. And 10 samples from the old city. In Nablus, water pumped from main sources to pump stations, then mixed in the collecting reservoirs, then pumped to houses reservoirs and finally to taps.

Results: The concentration of radon in main sources ranged from 2.3 to 23.4 Bq/L with a mean of 6.9 Bq/L. 4.6 Bq/L and 9.5 Bq/L are the means for springs and wells respectively. For tap water in the 7 regions the results ranged from 0.9 to 1.3 Bq/l with the mean of 1.0 Bq/L and for old city the mean was 2.3 Bq/L.

Conclusion:

radon concentration in wells and springs was below the United State environmental protection agency maximum contaminated level (MCL) except for Badan well. And much lower for tap water which reflects lesser risk from exposure to radon. Concentration of radon in the tap water of old city was higher than other regions of Nablus which may because the old city supplied from one source which is close to its dwellings.