



Evaluation of gross alpha and beta activity concentration in five vital organs of some goats

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1 SUMMARY

The objective of this study was to evaluate the gross alpha and gross beta activity concentrations in five vital organs (kidney, heart, lungs, liver and tongue) and dung from some twenty-five goats obtained from Turaku market in Minna, Niger state of Nigeria. The mean activity concentrations of gross alpha and beta ranges from 0.03 ± 0.01 to 1.06 ± 0.42 Bq/kg and 2.47 ± 0.35 to 40.59 ± 0.39 Bq/kg respectively across the five organs. These organs are highly consumed by humans and the radioactive concentrations in these organs ingested directly into the human systems could compromise the neural development of the foetus, which may result in mental retardation or other significant damage to the DNA arrangements resulting in a wide array of biological effects. The particles (alpha or beta) could react with molecules other than DNA molecules; lipids, proteins, water, etc. to produce free radicals that could adversely react with the DNA molecules in humans. The activity concentrations of the gross alpha and beta measured could cumulate (but does not always) and result in carcinogenesis or other adverse cellular events in some months or years after exposure due to DNA damage. For the dung, the average concentration of gross alpha activity was 0.2620 ± 0.0527 Bq/kg and gross beta activity was 3.210 ± 1.636 Bq/kg in all the twenty-five goats which could be transmitted into the food chain since the dung are widely used as manure in the country.
