INTISARI

Telah dilakukan analisis radioaktivitas alam pada komoditas ekspor, cupidikan yang dianalisis terdiri dari jahe gajah (*Zingiber officinale*) segar, ikan tuna (*Katsuwonus pelamis*) kaleng, susu segar sapi dan daun tembakau (*Nicotiana tabacum*) kering

Pengukuran radioaktivitas dilakukan dengan menggunakan metode gross α dan gross β serta spektrometri γ. Pengukuran gross (tidak dibedakan energi maupun mode peluruannya) α menggunakan alat cacak α dan pengukuran gross β dengan alat cacak β jenis Geiger-Müller. Di dalam analisis γ, paparan radiasi diukur menggunakan spektrometer γ dan diidentifikasi radionuklida yang ada (dari energi karakteristiknya) dan masing-masing dihitung besar aktivitasnya.

Hasil pengukuran menunjukkan gross α untuk jahe gajah segar (2,446.10^3 ± 8,304.10^5) Bq/gr, ikan tuna kaleng (2,084.10^3 ± 1,323.10^3) Bq/gr (produksi April 2000) dan (2,269.10^3 ± 18,317.10^5) Bq/gr (produksi Juni 2000), susu segar sapi (1,901.10^3 ± 8,301.10^5) Bq/l dan daun tembakau kering (1,272.10^3 ± 8,329.10^5) Bq/gr. Aktivitas gross β untuk pada jahe gajah segar (6,409 ± 0,314) Bq/gr, ikan tuna kaleng (2,971 ± 0,169) Bq/gr (produksi April 2000) dan (3,826 ± 0,122) Bq/gr (produksi Juni 2000), susu segar sapi (0,278 ± 0,054) Bq/l dan daun tembakau kering (4,351 ± 0,246) Bq/gr. Dengan spektroskopi γ dapat diidentifikasi adanya 5 radioisotop alam berdasarkan puncak tenaga; ^40^K (1461,3 keV), ^208^Tl (510,5 keV dan 583,3 keV), ^212^Pb (238,8 keV), ^214^Pb (352,8 keV) dan ^137^Cs (661,2 keV).
ABSTRACT

An analysis has been carried out on the natural radioactivity of export commodity, a sample that analyzed are fresh ginger (*Zingiber officinale*), tuna skipjack (*Katsuonomus pelamis*) in oil, cow's fresh milk and dry tobacco (*Nicotiana tabacum*) leaf.

Measurement of radioactivity by applying two methods the gross α and β activity analysis and the γ spectrometry analysis. In the gross α and β activity analysis, the (natural) radiation exposure measured by α counter and GM (β) counter and analyzed by gross methods (no different in energy radiation and decaying modes). In the γ spectrometry analysis, the (natural) radiation exposure by γ spectrometry and analyzed by spectrometry methods to identify the existing radionuclides (from γ energy characteristic) and to calculate the activity of each radionuclide.

The result showed that the gross α for fresh ginger \(2,446.10^{-3} \pm 8,304.10^{-3}\) Bq/gr, tuna skipjack in oil \(2,084.10^{-3} \pm 1,323.10^{-2}\) Bq/gr (produced April 2000) and \(2,269.10^{-3} \pm 18,317.10^{-5}\) Bq/gr (produced June 2000), cow's fresh milk \(1,901.10^{-3} \pm 8,301.10^{-5}\) Bq/l and dry tobacco leaf \(1,272.10^{-3} \pm 8,329.10^{-5}\) Bq/gr. The gross β activity for fresh ginger \(6,409 \pm 0,314\) Bq/gr, from tuna skipjack in oil \(2,971 \pm 0,169\) Bq/gr (produced April 2000) and \(3,826 \pm 0,122\) Bq/gr (produced June 2000), cow's fresh milk \(0,278 \pm 0,054\) Bq/l and dry tobacco leaf \(4,351 \pm 0,246\) Bq/gr. By using the γ spectrometry technique to analyze the (natural) radiation exposure one can identify five natural radioisotopes; \(^{40}\text{K} (1461,3\text{ keV})\), \(^{208}\text{TI} (510,5\text{ keV} \text{ and } 583,3\text{ keV})\), \(^{212}\text{Pb} (238,8\text{ keV})\), \(^{214}\text{Pb} (352,8\text{ keV})\) and \(^{137}\text{Cs} (661,2\text{ keV})\).