

Sarinya Wongsanit 2010: Gross Alpha and Beta Activities in Sea Water, Sediment and Plankton in the Coastal Ecosystem: The Upper Gulf of Thailand. Master of Science (Applied Radiation and Isotopes), Major Field: Applied Radiation and Isotopes, Department of Applied Radiation and Isotopes. Thesis Advisor: Associate Professor Pannee Pakkong, M.S. 119 pages.

Sea water, sediment and plankton samples were collected from 10 stations on the Upper Gulf of Thailand, Chonburi province. Samples were collected total 5 times every 3 months. The result of the appropriate statistical time of gross alpha and beta counting in sea water sample were using 100 and 200 minutes respectively, sediment, were using same 200 minutes each, and plankton were using 250 and 200 minutes respectively. The result of the self-absorption correction factor of sea water sample for gross alpha in a weight series that range from 20 to 75 mg were $F_a = 0.0003w^2 - 0.0414w + 1.692$ and the factor does not influence the measurement of gross beta in the weight series range from 0.5 to 50 mg.

The average efficiency of the measurement of gross alpha and beta were range from 2.41 to 4.98 percent and from 2.41 to 8.96 percent, respectively. The Minimum Detectable Activity, MDA were averaged at 0.0438 Bq/weight. The measurement of gross alpha and beta in dry season (October-May) showed the average of 0.14 ± 0.039 Bq/l and 0.56 ± 0.023 Bq/l in the sea water samples, respectively, in sediment samples were 0.73 ± 0.04 Bq/Kg and 6.72 ± 0.07 Bq/Kg, respectively, in plankton samples were 0.0080 ± 0.0023 Bq/l and 0.1328 ± 0.0120 Bq/l respectively. During the wet season (June - November) the average of gross alpha and beta in sea water samples were 0.22 ± 0.043 Bq/l and 0.92 ± 0.028 Bq/l, respectively, in sediment samples were 0.64 ± 0.04 Bq/Kg and 6.81 ± 0.07 Bq/Kg, respectively, in plankton samples were 0.0107 ± 0.0026 Bq/l and 0.2007 ± 0.0136 Bq/l, respectively.

Student's signature

Thesis Advisor's signature