

<Marine Organism Rearing Log>

9 AM, June 15, 2023

Weather: Rainy

Water temperature: 17.5°C

Based on the tritium concentration in the rearing seawater, tritium concentration in dried flesh of flounder is estimated to be around 400 Bq/L, taking into account previous findings. When expressed as tritium amount corresponding to edible parts (muscle), it is 50 Bq, and is equivalent to 287 Bq after converted as per 1 kilogram of dried muscle.

The technical term for tritium in the muscle is Organically Bound Tritium, which is denoted by OBT.

- Weight of dried muscle of flounder's edible parts:
 $1,000[\text{g}] \times 0.75 \times (1-0.768)=174[\text{g}](\text{dry})$
- The amount of hydrogen in the muscle (dry) of edible parts based on the hydrogen content:
 $174[\text{g}] \times 0.08=13.92[\text{g}]$
- Water produced when the aforementioned hydrogen is combusted (reacting with oxygen to form water) (O:16, H:1, H₂O:18):
 $13.92[\text{g}] \times (18/2)=125.28[\text{g}]=0.12528[\text{L}]$

Tritium contained in dried muscle (OBT) is expressed as the concentration of tritium contained in 1 liter of water produced by the aforementioned combustion.

- Based on the tritium concentration of 400[Bq/L] contained in the dried muscle (OBT), the amount of tritium contained in 174 grams of dried muscle is calculated:
 $400[\text{Bq/L}] \times 0.12528[\text{L}]=50.11[\text{Bq}] \doteq 50[\text{Bq}]$
- Incidentally, tritium contained in dried muscle when expressed in Bq/kg:
 $50[\text{Bq}] \div 0.174[\text{kg}]=287[\text{Bq/kg}](\text{dry})$