



**Threatened:** A team processing a green turtle on a boat in Upstart Bay, Queensland. Human medicines and household substances have been discovered in the blood of green turtles in Australia's Great Barrier Reef. — AFP

# Risk of pharmaceuticals in water

AN AFP report last month quoted researchers saying that human medicines and household substances have been discovered in the blood of green turtles in Australia's Great Barrier Reef.

This shows that even in a so-called developed country, people are unaware of the proper ways of disposing their leftover medicines. More often than not, they would dump them down the sink or flush them into the toilet.

Last year, the Health Ministry issued a public statement to remind Malaysians of the dangers of disposing unused or expired medicines down the sink or toilet, "Do not throw medicines into drains" (*Star Online*, Dec 31). "The sewage plants cannot treat chemical waste and this can lead to contamination of rivers and our water supply," it said.

According to a World Health Organisation Report in 2011 titled "Pharmaceuticals in Drinking Water", advanced and costly water treatment technology will not be able to completely remove all pharmaceuticals to concentrations less than the detection limits of the most sensitive analytical procedures at all times. Thus, even after

the wastewater has been treated, the effluent discharged to the rivers/ beaches would still contain traces of pharmaceuticals.

WHO says traces of pharmaceuticals have been found in the water cycle, including drinking water, in the last decade typically at levels in the nanograms to low micrograms per litre range.

Researchers have discovered evidence showing that even very low dosage of pharmaceuticals can be a potentially serious threat to aquatic life. It may affect the aquatic life in terms of behavioural change, for example the increased presence of oestrogen and other synthetic hormones in wastewater could affect the feminisation or masculinisation of different fishes, therefore affecting their reproductive rates as they become anti-social and stop reproducing.

Prof Madya Dr Yuzine Esa of the Genetic Expert and Fish Breeders Faculty of Agriculture, Universiti Putra Malaysia (UPM), stressed that this transgender phenomenon would have a long-term negative impact, including the extinction of fish species, if it is not controlled.

In Europe and the United States, several studies on the presence of

pharmaceuticals in the water cycle have been carried out and more extensive monitoring programmes have been conducted to detect these pharmaceuticals.

This is not the case in Malaysia, unfortunately.

Even though traces of medicines in water may not pose a direct risk to human health, consuming the affected aquatic life may pose great danger to our lives in the future.

Besides, with the increasing use of pharmaceuticals worldwide, there is no doubt that the concentration of medicines in water will increase if it is not controlled immediately.

More research on this issue needs to be conducted in Malaysia, and levels of pharmaceuticals in either raw water or drinking water should be stated in the established water quality standard as well as the National Water Quality Standards. It is vital to have the traces of pharmaceuticals in water quality standards as it would indicate whether the water is safe enough for consumption.

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