Recommended Clean-Up Procedures Following Palytoxin Incidents

Introduction

Palytoxin is a toxin produced by species of *Palythoa* and *Zoanthus* soft corals (collectively called zoantharians), either as a defence mechanism or to assist them in capturing prey. Zoantharians are popular with marine reef aquarists as they are very colourful, commercially available, and often seen as a good 'starter' coral. Incidents involving palytoxin typically occur when the slime coating produced by zoantharians is exposed to air. The Ornamental Aquatic Trade Association (OATA) has produced detailed guidance for marine reef aquarists on how to prevent palytoxin poisoning (OATA, 2018).

Exposure to palytoxin may occur via the skin, eyes or by inhalation. Symptoms of palytoxin poisoning may include fever, cough, headache, difficulty breathing, rapid heart rate, skin redness/rash, muscle pain, irritation of the eye, sensitivity to light, and conjunctivitis.

Background

A number of incidents involving palytoxin from corals in home aquaria have been reported internationally. Generally, there is a lack of understanding of how palytoxin survives in the environment, however no reports have been found of individuals being re-exposed or ill again on re-entry to homes or premises where exposure has previously occurred. The risk of palytoxin exposure is likely to be greatest at the time of the production of the toxin and is expected to be lower in the following hours or days.

Following an incident, decontamination of the property is often recommended, although no information is available on what that should involve. Based on collective views of international palytoxin experts and public health officials, a "deep clean", rather than decontamination, is recommended following a palytoxin incident in the home.

Residents may choose to employ the services of a specialist contractor to carry out the deep clean. However, if properly advised and wearing appropriate personal protective equipment (PPE), it is possible for individuals to carry this out themselves.

Should residents choose to clean-up the property themselves, another person should be available to call for help in the event of a repeat exposure (which is highly unlikely, so this is simply as a precautionary measure), and children or pets should not be present during clean-up. Usual practices including vacuuming can be undertaken after deep clean has been completed and soft furnishings/carpets have been dried out.

Following deep clean, it is expected that residents can safely return to their homes.

Recommended Personal Protective Equipment

Personal Protective Equipment (PPE) is recommended for anyone carrying out the clean-up, or in the property whilst the clean-up is taking place. This should include **overalls**, **gloves, eye protection** (glasses, goggles), and **respiratory protection** (a respirator filtering to 10 microns should be sufficient – FFP1 or FFP2 from DIY stores). Following clean-up, PPE should be promptly disposed of in a sealed plastic bag and hands washed thoroughly thereafter (as well as any body parts suspected to have been in contact with bare hands before they have been washed).

Recommended Cleaning Procedures

The area should be well ventilated during cleaning. It is expected that the deep-clean will only be required in the room where the exposure has taken place, unless there are other rooms in close proximity with doors open during the exposure.

- **Hard surfaces:** walls, floors, hob, sink, blinds, work surfaces (and any other hard objects or surfaces including other kitchen appliances, children's toys etc) should be washed in warm soapy water followed by a dilute bleach solution (one part standard household bleach to nine parts water) and then rinsed. Anything immersible should be soaked in bleach solution (particularly children's toys) then rinsed thoroughly.
- **Radiators:** (wall-mounted heaters) should be cleaned when they are cold then switched on when dry with the room well ventilated.
- **Kettle, coffee maker:** particular attention should be paid to items capable of boiling water and creating aerosol, e.g. kettles, coffee makers, dishwasher. These should be cleaned following the recommended cleaning procedures for hard surfaces (above). If kettle is in close proximity to where palytoxin has been produced, it is advisable to suggest replacing as a precautionary measure.

- **Food, drink:** advise disposal of food or drink that has been lying out in affected area.
- **Tank, coral and stone**: using PPE, the tanks and any remaining coral and stone should be treated as per OATA guidance (OATA, 2018), double-bagged and placed in refuse bin.
- **Soft furnishings**: should not be vacuumed, even with vacuum fitted with HEPA filter. If possible, clean potentially exposed soft furnishings with bleach solution, followed by warm soapy water and allow to dry thoroughly. Where this is not possible, or where direct exposure is unlikely to have taken place, clean using warm soapy water (a carpet cleaner or hand-held soft-furnishing cleaner may also be used) and allow to dry thoroughly.
- **Soft toys**: should ideally be disposed of (as a precautionary measure) given potential to be chewed by, or in very close contact with, children. If not acceptable to occupants, advise that particular care is required in cleaning children's soft toys. Cleaning should be carried out using warm soapy water, followed by mild bleach solution, followed by thorough rinsing. If toys can be washed in washing machine, this is a suitable option prior to mild bleach and thorough rinse.

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Reference: OATA, 2018 https://ornamentalfish.org/wp-content/uploads/OATA-palytoxin-guidance-to-marine-reef-aquarists_April-2018.pdf [accessed 16th January 2019]

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