

Experiments with the nematocysts of *Carybdea rastoni* ("Jimble")

To the Editor: It has previously been shown that when vinegar (4-6% acetic acid in water) is poured on a fresh sting for a minimum of 30 seconds, it is effective in deactivating the nematocysts of the deadly *Chironex fleckeri* (north Australian box jellyfish) and other cubomedusans, including *Chiropsalmus quadrigatus* (the north Australian variety), the "Morbakka", and *Carukia barnesi* (the "Irukandji"). Turner *et al* also found it to be effective in the deactivation of the nematocysts of *Physalia physalis* (the "blue-bottle").

However, vinegar has also been shown to have the opposite effect (that is, it causes discharge of the nematocysts) in *Cyanea capillata* (the "hair" jellyfish), *Chrysaora quinquecirrha* (the "sea nettle", and possibly *Pelagia noctiluca* (the "little mauve stinger").

In Western Australia during the 1986/1987 summer season, large numbers of swimmers were stung by what appeared to be greater than usual numbers of the cubomedusan, *Carybdea rastoni* (the "Jimble"). In the recent National Surf Life Saving Championships in March 1987 on Scarborough Beach, Perth, many of the competitors in the water events received stings from this species. The stings themselves caused an irritating white papular skin wheal with surrounding erythema but no systemic symptoms.

Treatment was with household vinegar (4-6% acetic acid), in accordance with current recommendations. However, as at that time specific discharge experiments with this species had not been performed, some specimens of *Carybdea rastoni* were captured and the reaction of their nematocysts to various common substances was tested, by means of previously described methods.

In these experiments, we found that vinegar, a "slurry" of baking soda, and Stingose (aluminium sulphate, 20% w/v) were all very effective in inhibiting the firing of the nematocysts of *Carybdea rastoni*. Methylated spirits caused an immediate mass discharge of the nematocysts but saline, which was used as a control substance, had little effect on the nematocysts.

Thus, vinegar has now been shown to be an effective inhibitor of the discharge of nematocysts from all the cubomedusae, including *Chironex fleckeri*, that have been tested to date. As it is cheap, easily available and safe to use, it is again recommended as the primary first-aid treatment of cubomedusan jellyfish stings simultaneously with an assessment of the conscious state. Although baking soda and Stingose appear equally effective for *Carybdea rastoni* ("Jimble") stings, their availability and cost compared with that of vinegar makes them less useful for immediate treatment.

It is again emphasised that vinegar will only inhibit unfired nematocysts that remain on the skin. It does nothing to stop the pain of envenomation, nor does it deactivate any toxin that has already been injected under the skin of the victim. The search for such a treatment which is capable of use in first-aid is continuing.

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