

The Virgin Islands Consortium

UVI Study: Eating Lionfish Could Give You Fish Poisoning

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ST. CROIX – The University of the Virgin Islands wants residents to know that eating lionfish could give you fish poisoning.

Lionfish are an invasive species that have been identified as a sustainable seafood resource on cooking TV shows, in cookbooks and in diving magazines – in order to reduce their population in the Caribbean Sea, the Gulf of Mexico and the Atlantic.

“While this could represent a great economic opportunity in local communities as an artisanal fishery, lionfish also pose a potential human health hazard as a vector for ciguatera fish poisoning in endemic regions such as the U.S. Virgin Islands,” said

Bernard Castillo, UVI assistant professor of chemistry. “Ciguatera fish poisoning is a leading cause of seafood-borne illness and is estimated to cause up to 500,000 illnesses annually.”

University of the Virgin Islands researchers have published results of their investigation into the consumption of lionfish in the Marine Drugs Journal. Since 2008, lionfish native to tropical and sub-tropical reef ecosystems in the southern Indian Ocean, South Pacific and Red Sea have been reported in waters in the territory.

“With few natural predators, high reproductive rates, and high growth rates, lionfish have rapidly established populations in the northwestern Atlantic and Caribbean,” said Tyler Smith, UVI associate research professor of marine science. “These population explosions have a dramatic ecological impact on reef fish biodiversity, habitat, and community structure, with lionfish out-competing native predators for resources.”

Ciguatera fish poisoning is caused by the consumption of reef fish that have accumulated ciguatoxins produced by marine micro-organisms and is characterized by a variety of severe gastrointestinal, neurological, and occasionally cardiovascular symptoms that can occur within four hours and last up to six weeks.

Fish most commonly known to cause ciguatera fish poisoning include grouper, barracuda, snapper, jack, and mackerel. Ciguatoxins are tasteless, colorless, and odorless, therefore it is impossible to identify a toxic fish by sensory analysis. Importantly, these toxins are stable under normal cooking temperatures and for extended periods of freezer storage.

Researchers collected over 180 lionfish from waters surrounding the territory throughout 2010 and 2011 and tested them for their levels of ciguatoxins. General results and conclusions from the study were:

- Lionfish can contain ciguatoxins at concentrations exceeding U.S. Food and Drug Administration (FDA) guidance levels for safe seafood.
- Lionfish can have ciguatoxins at levels 12 percent above FDA guidance; similar to other predatory fishes, such as the schoolmaster snapper.
- Lionfish consumption has risks and should be treated similarly to other small predatory fishes and not consumed from areas known to produce toxic fish.
- Lionfish control strategies, including marketing and eating fish, should continue in the territory, but it is best to consult an experienced commercial fisherman on which fish are likely to be less of a risk.

For more information about ongoing lionfish research at UVI please contact Howard Forbes Jr., Virgin Islands Marine Advisory Service coordinator, at (340) 693-1672 or howard.forbes@live.uvi.edu