

Innovations/Discoveries in Science (October- December, 2016)

News Section.....

• DNA analysis of seawater detects 80% of fish species in just one day.

Japanese research group has used a new technology that identifies multiple fish species populating local areas by analyzing DNA samples from seawater, and proved that this method is accurate and more effective than visual observation. Until recently, marine surveys of fish species relied on diving or capturing methods that classified fish based on appearance. A new solution to the survey issue has recently drawn attention: environmental DNA metabarcoding, a method which can simultaneously detect multiple species fish in multiple areas during a short time period. This method identifies the fish species through collection and analysis of DNA released by fish in seawater (environmental DNA, or eDNA).



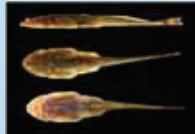
• Sticky gels turn insect-sized drones into artificial pollinators

As bees slip onto the endangered species list in USA, researchers in Japan are pollinating lilies with insect-sized drones. The undersides of these artificial pollinators are coated with horse hairs and an ionic gel just sticky enough to pick up pollen from one flower and deposit it onto another. Far from replacing bees, the drones' designers are hopeful that their invention could someday help carry the burden that modern agricultural demand has put on colonies and in turn benefit farmers.



• New species of catfish discovered in Myanmar

The new catfish, scientifically named *Oreoglanis hponkanensis*, has a moderately broad and strongly depressed head and body, and small eyes. The species is predominantly brown in colour, with light yellow belly and several yellowish patches across the body. Noticeable are also two round, bright orange patches in the middle of the fin.



• Evolution of a functional head joint in deep-sea fishes (Stomiidae)

Barbed dragonfishes, deep-sea fishes in the Stomiidae family, have a flexible connection between their first vertebra and the back of their head, a characteristic that is unique among deep-sea fish. The researchers found that, when the fish is in resting position and not elevating its head, this flexible rod has an additional ventral sheath that embraces the back of the head like a socket, but that when these fish open their mouths, the extra sheath gets stretched out and the bottom part of this rod is exposed, potentially allowing the fish to open its mouth up to 120 degrees.



• Scientists confirm dorado catfish as all-time distance champion of freshwater migrations

An international team of scientists has confirmed that the dorado catfish (*Brachyplatystoma rousseauxii*) of the Amazon River basin holds the record for the world's longest exclusively freshwater fish migration, an epic life-cycle journey of approximately 11,600 kilometers (more than 7,200 miles).



• New species of Pika discovered in Sikkim Himalayas

Scientists have discovered a new species of Pika (a mammal belonging to the rabbit and hare family in the Himalayas in Sikkim). It has been identified as '*Ochotona sikimaria*'. It is quite distinct from all other Pika species based on the faecal pellets and tissue samples. *Ochotona sikimaria* Pika species looks similar to the Moupin Pika, however genetically it is completely different.



• Scientists studying dolphins find Bay of Bengal a realm of evolutionary change

Marine scientists have discovered that two species (*Sousa chinensis* and *Tursiops aduncus*) of dolphin in the waters off Bangladesh are genetically distinct from those in other regions of the Indian and western Pacific Oceans, a finding that supports a growing body of evidence that the Bay of Bengal harbors conditions that drive the evolution of new life forms, according to a new study. The findings indicate that there is a connection between the presence of these distinct populations of dolphins and the unique oceanic habitat that is found in the Bay of Bengal. The combination of a biologically rich yet isolated seascape could be driving speciation, or the emergence of new species.



• Multi drug resistant bacterium isolated from chicken

Researchers from Hyderabad have isolated *Helicobacter pullorum* bacterium in chicken that may be source of transmission of the multidrug resistance pathogen to humans. This is the first evidence on prevalence and isolation of *H. pullorum* multidrug resistance bacterium from broilers and free-range chicken sold in Indian markets.

• IGKV develops a high protein enriched rice variety

A protein-enriched rice variety has been developed by the researchers of Indira Gandhi Krishi Vishwavidyalaya (IGKV). The new developed rice variety has over 10 per cent protein content, which is three per cent more than what is found in any popular variety and has 30 PPM zinc content.

Vasudha Agnihotri (vasudha@gbpihed.nic.in),
Scientist-C
and

Nayan Sahu (sahunayan60@gmail.com)

G.B. Pant National Institute of
Himalayan Environment and Sustainable Development
Kosi-Katarmal, Almora-263 643, (Uttarakhand)

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