

In this issue

Export of Fisheries Products

Confronting challenges

Nearly one-fifth of the total agricultural export from India is contributed by sea food. But the share of the fisheries sector in ground-level credit to the agricultural sector as a whole has declined from 1.31% in 2003–04 to 0.30% in 2013–14, points out a General Article in this issue.

With the intention of increasing fish export earnings to one billion rupees by 2025, the Government of India allocated 200 billion rupees in 2020. But, we cannot achieve the target by financial allocation alone, without a clear understanding of the problems plaguing the sector and evidence-based strategies and enabling policies.

Only about 10–13% of the total marine production of India is exported. The remaining is consumed domestically. Domestic consumption is expected to increase with prosperity, points out the article.

Two-thirds of the exports is frozen shrimp. The diversification of marine foods and their destinations will provide the potential for export growth. But that means more processing plants, better technology, stricter considerations of quality and safety. And all this calls for institutional mechanisms for facilitation, management, enforcement, surveillance... This, in turn, means coordination between a wide range of actors and institutions which can be achieved only with appropriate policies.

For details, read on from **page 664**.

Targeting Tumour

Trapping TRAP1

A protein associated with the receptor of tumour necrosis factor is expressed in normal tissues but more prominently in tumour cell lines. The protein, TRAP1, starts out as a chain of 704 amino acids but, once it is inside the mitochondria, it discards 59 amino acids that are necessary to enter mito-

chondria. There, it forms a dimer to capture and hydrolyse ATP, playing a key role in mitochondrial metabolism.

A Review Article, in this issue, summarises what is known about TRAP1. Besides modulating mitochondrial dynamics and inducing a metabolic switch in the glycolytic pathway and ATP production, promoting cell survival during stress in endoplasmic reticulum, the protein plays a role in controlling the cell cycle to modulate cell proliferation, metastasis. The review also cites studies related to inhibiting the protein or creating knock-out strains. The studies suggest that targeting TRAP1 in drug-resistant cancers could make the cancers responsive to drugs.

Turn to **page 671** and read about the remaining questions in the biological puzzle of cancer and potential paths to developing therapeutics.

Indian Summer Monsoon

Heavy rainfall events

While monsoon rains are welcomed all over India, continuous high precipitation for three to four days can create havoc – floods, landslides...

The numerical weather prediction model faces difficulties in forecasting such events not only because of inaccuracies in the physical and statistical parameters used in the model, says a Research Article in this issue. As a complex non-linear system, weather prediction depends on initial conditions and minor inaccuracies in initial conditions create increasing divergences from reality in time during simulations.

The Research Article proposes methods to improve accuracies in predicting heavy rainfall events.

The authors identified four high rainfall events each from 2018 to 2020, and, experimentally simulating the twelve events with and without using the methods proposed, they show that it is

indeed possible to improve the accuracy of forecasts about heavy rainfall events.

Interestingly, in the process, they managed to improve the precision of default values of some of the parameters used in rainfall prediction. Though a small step in improving weather prediction, a giant step in atmospheric sciences. Read on from **page 693**.

Crofton Weed Management

By finding uses

Crofton weed, an herbaceous plant with dark green leaves and white flowers, reproduces by both vegetative means and via seeds dispersed by wind – an advantage over most other plants. Besides, the perennial plant produces chemicals that suppress the germination and growth of other plants. So the plant is slowly invading roadsides, fallow lands, and the surroundings of agricultural fields in several countries across the world.

In a Research Communication in this issue, researchers from Nepal suggest that finding uses for the plant is one of the ways to manage the menace of the invasive species. They report the analysis of the essential oil and other constituents of the leaves of the Crofton weed, *Ageratina adenophora*, on **page 757** in this issue.

Besides allelopathic chemicals that suppress other plants, the plant contains chemicals that forestall herbivory. Antiarvicidal, antimicrobial and other medicinal compounds are also present in the plant.

The researchers compared the constituents of leaves collected from two different altitudes in the mountainous country. The volatiles in the leaves vary based on the altitudes, they find. A clue about the agro-climatic conditions for cultivating and harvesting the plant for specific uses.

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