

In this issue

Two Clocks for Time

Need for another time zone

India extends from Arunachal Pradesh in the east to Gujarat in the west, measuring 2933 km. With greater distance, comes a greater time difference in sunrise between the two places. The sun rises about 2 hours earlier in Arunachal Pradesh than in Gujarat. Because the entire country follows the same time zone, people living at two extremes have to adapt to the Indian Standard Time. For people living in the Northeast, this means wasting significant daylight hours that could be utilised for productive work. So, it has been proposed that the country be divided into two time zones. However, time zone divisions are risky, especially from the point of view of managing transport networks. Confusion in readjusting time zones at the borders may create a lot of chaos and may even lead to accidents. Therefore, the two time zones idea has not been adopted so far.

In this issue, scientists from the CSIR-National Physical Laboratory, New Delhi provide a simple solution to this problem. They have identified an area ideal to implement this change. In a General Article on **page 1254**, they discuss the issues surrounding different time zones and how these can be tackled.

Improving Milk Quality

Scientific management practices

Milk is an important part of our diet. Besides providing carbohydrates, vitamins and minerals, milk and milk products are also good sources of protein. But recently it has been found that an abundant milk protein, beta casein, can exist in two different forms, each digested differently.

Digestion of one form, termed A1, produces beta-casomorphin, a substance associated with diabetes, arteriosclerosis, coronary heart disease and other metabolic disorders. Hence drinking the other variant or A2 milk is considered a healthier alternative.

While most indigenous animals like the Sahiwal, the Tharparkar, the Red Sindhi, the Gir and the Rathi produce A2 milk, other exotic breeds produce the A1 variant. Since indigenous animals are crossbred with exotic animals to increase milk production, it could compromise the quality of milk in terms of the type of beta casein. Hence there is a need to reconsider breeding programmes and how to optimise them for producing premium milk. In a Research communication in this issue, scientists from the Indian Institute of Technology Bombay and the Central Island Agricultural Institute, Port Blair discuss how scientific cattle management practices could be used to increase A2 milk production. Read on from **page 1393**.

Avoiding Mycetism

Anthology of indigenous knowledge

People from the Karbi Anglong tribe in Assam follow Jhum or shifting cultivation. The slashed vegetation serves as a breeding ground for mushrooms. The Karbis are known to supplement their diet with mushrooms and other forest produce. But not all mushrooms are edible and choosing the wrong ones could lead to death. So over generations, the Karbis have garnered a treasure trove of information about mushrooms which helps them avoid mycetism. On **page 1328** in this issue, Prila Hansepi and Robindra Teron from the Assam University discuss the Karbi practice of selecting mushrooms.

Karbi people have learnt how to choose the right mushrooms and rely on unique cooking methods to prevent mushroom poisoning. Broadly speaking, the Karbis avoid mushrooms that have an unpalatable smell or are brightly coloured. They also cook their mushrooms with sour tasting herbs that stabilise the flavour and chemical nature of mushrooms. Some of these mushrooms are also used as medicines for common ailments.

This knowledge is transferred from one generation to the next, usually through word of mouth. The information qualifies as indigenous knowledge and in a Research Article, the authors discuss ways of utilising this knowledge to avoid mycetism.

Details in Cholesterol

Another indicator of heart disease

People suffering from metabolic disorders are routinely prescribed blood tests to monitor lipids. Generally, a higher lipid concentration increases the risk of cardiovascular diseases. But, there is a dearth of specific markers to predict a heart attack or early cardiovascular disease.

While the levels of LDL and HDL do not reveal as much, these lipid carriers are subject to oxidation. Under altered physiology, the modification is greater than in a normal state. As a result, LDL and HDL undergo enzymatic and non-enzymatic changes that could impair their functions. The extent of change and the secondary products produced could be used as a yardstick to study cardiovascular diseases.

In this issue, scientists from the Pushpagiri Institute of Medical Sciences and Research Centre, Kerala, The CHILDS Trust Medical Research Foundation, Chennai and the VIT University, Vellore review recent literature on the quality of lipoproteins produced during the diseased state and how these may serve as indicators for early cardiovascular disease. Evidence from many sources shows that the concentration of myeloperoxidase, a peroxidase enzyme and modified apoA1 – a protein usually present at the core of HDL – correlates positively with heart attacks and subsequent cardiac events. How could these be scaled up as early marker for cardiac diseases and more in a Review Article on **page 1276**.

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