

Indian science. The authors of the letter have been in close proximity to political power, and at the helm of affairs in the country. Surely they would not be unaware of the low credibility of the CBI, and yet they have quoted the CBI report as a gospel truth. The verdict given by the Chief Judicial Magistrate is mentioned approvingly. However, subsequent judicial action of the Kerala High Court is questioned. Will this help Nambi-

narayanan? The authors write: 'These dangerous trends, if allowed to continue, can demotivate and demoralize the many hard working and dedicated professionals who have made Indian achievements in these areas possible, usually for paltry compensations. Such actions are likely to derail these programmes and adversely affect the national interest more severely than any foreign hand'. What does 'paltry compensation' mean? Does patriotism

need compensation? And, finally do we not find in the last sentence of the quote above an echo of the threat issued by the politicians against so-called judicial activism?

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Life in extreme environments

Although the earliest of life forms are believed to be of thermophilic origin¹, metabolism in most plants is adversely effected above 40°C. The lower optimal range for most species is influenced by earth's mean surface temperature, estimated² to be at 15°C. In higher plants, 10–35°C is optimal for photosynthesis³, whereas extreme limits for active metabolism are around sub zero and up to 50°C in some alpine⁴ and desert plants⁵, respectively. 'Plant life under extreme environments' (H. Y. Mohan Ram and Promila Gupta, *Curr. Sci.*, 1997, 72, 306–315) are the adaptive responses under these conditions.

However, the 3850 million years history of life⁶ on this planet has evolved other glaring extremities, in the world of microbes. The development of succession flora in decomposing litter biomes is constantly modulated by the changing temperature regimes. The extreme and optimal temperature ranges are re-defined each time one set of microbial population replaces the other. Sulphur oxidizing bacteria near hot water springs dwell at temperatures otherwise lethal for life. Infact, temperature as high as 80°C is the lower extreme limit below

which certain archaeobacteria cannot survive⁷.

Restriction of these organisms to specific niches may term rest of the environment as extreme! Perhaps not always. Crenarchaeota, an exclusive class of organisms, were long thought to be exclusively restricted to extreme environment of hot springs, but their recent discovery in marsh and lake sediments, and Antarctic ocean⁸ has not only changed the existing concepts on microbial nomenclature but revealed greatest 'plasticity' that life can afford⁹.

Life's endeavour to constantly proliferate in extreme of environments, goes a step further in the functional capacity of 'non-solar organisms', providing new hope of sustenance even when the lid of darkness may nudge down to seal life on earth¹⁰.

Lastly, it would be of interest to look for organisms having a kind of facultative ability to shift from light to thermal-harvesting mechanisms, remembering that the first life forms used energy sources other than visible spectra of sunlight¹.

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