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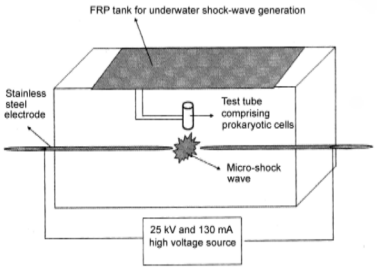
Shock waves enhance bacterial transformation

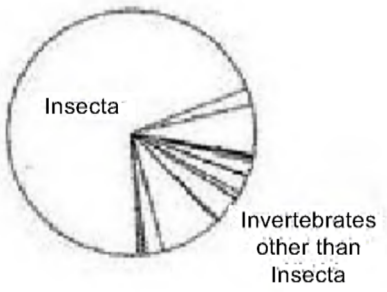
The occurrence of shock waves is always characterized by instantaneous changes in pressure, velocity and temperature in a fluid flow. Jagadeesh *et al.* (**page 734**) report a new shock wave assisted *E. coli* cell transformation enhancement technique. Spherical micro-shock waves (few mm radius) generated in water, by instantaneously depositing electrical energy (100 J) between a pair of two stainless steel electrodes (1 mm apart) for about 0.35 μs are used for



cell transformation. The eppendorf tubes containing *E. coli* (DH5-alpha) competent cells with naked plasmid DNA (pBI121 containing *nptII* and *gus* genes, Clontech, USA) are placed just above the electrodes (few mm) and subjected to shock wave loading (~ 130 bar for about 10 μs). Substantial enhancement in the bacterial cell transformation has been observed in shock wave exposed cells when compared to conventional KCM method of bacterial transformation. Experiments are currently underway to clearly understand the actual mechanism of cell transformation enhancement after exposure to shock waves.

Cataloguing Indian biota

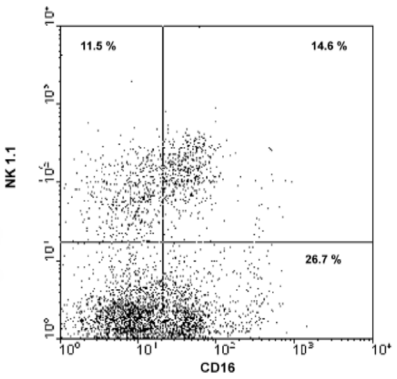
Data and information regarding the biotic resources of India remains distributed, causing hardship in accessing adequate, authentic and accurate information about them to anyone, anyplace, anytime. While emphasizing development of well-constructed electronic catalogues of known life, Chavan *et al.* (**page 749**) describe in



detail development of IndFauna (Electronic Catalogue of known Indian Fauna). After collating baseline information about 84,000 of the 90,000 known Indian faunal species, they argue that other than single click access, such a catalogue would provide platform for collaboration and exchange/sharing of biodiversity information within the taxonomic and ecological community. E-catalogues such as this one can play the role of central registry of names of known organisms and in resolving taxonomic discrepancies, as it would provide much required baseline data for taxonomic scrutiny or revision.

Enhanced activation of mouse cells

Antibodies are unique adapter molecules that bind to antigens through N terminal Fab portion and interact with effector immune cells through Fc portion on C terminal. Under normal conditions, antigen–antibody complexes (circulating immune complexes or CICs) are present in very low concentrations in blood. However, in a variety of diseases when exposure to particular antigens is



high, serum CIC levels also increase. This generally happens in cancers, autoimmune and infectious diseases. Cross linking of Fc receptors on immune effector cells by multiple antibody molecules complexed in CICs can result in activation of effector cells or cause functional changes in these cells. Das *et al.* (**page 780**) have shown that CICs at levels seen during diseased conditions, boost the activation of Natural Killer (NK) lymphocytes by the cytokine IL2. These results suggest that in diseases characterized by elevated levels of CICs in blood, aberrant activation of some components of the immune system is possible and should be considered by clinicians.