In this issue

Scientific and environmental concerns

Gupta and Yunus (**page 37**) discuss key environmental concerns to be addressed globally in the background of national priorities and prevalent ecological constraints. An objective evaluation of international initiatives through the Rio Summit and Agenda-21 along with an audit of India's achievements have been summarized. Analysis of major issues of sustainable development paradigm in the wake of the journey from Stockholm (UN Conference, 1972) to Johannesburg (WSSD, Rio + 10, 2002) identified national priorities for scientific and strategic concerns to be bargained at national and international platforms. Aspects of food safety in sustainable agriculture, preventive disaster management, and community governance have been advocated and the major scientific concerns have been projected. They also emphasize setting up of a Council for Environmental Research and Training, quality control in environmental services and research, and linking sustainable development objectives and ecological security issues.

Covert bacteria

Plant tissue cultures are generally expected to be free from microorganisms. Microbial contaminants are sometimes introduced in the cultures as endophytes along with the explant or as incidental contaminants. Most of the microbes, but for the exception of viruses and mycoplasma, are generally believed to grow and express visibly on the tissue-culture medium. But this need not be the case always. Several bacteria require specialized nutrients and growth conditions, and they may remain covert or subdued in the cultures. Such bacteria may be the cause for many unexplained maladies in tissue culture, such as culture degeneration or lack of reproducibility of tissue culture protocols, besides being a threat to *in vitro* gene banks and safe exchange of cultures.

Availability of a dependable bacterial detection method is the primary requirement for addressing the covert contamination problem in plant tissue cultures. Pious Thomas (**page 67**) describes the development of a sequential three-step screening procedure for the reliable detection of any covert or latent bacteria-harbouring plant cultures after experiencing inconsistent and undependable results with conventionally followed methods.

Rattan: A green gold

Rattans, one of the two 'Cinderellas' (the other is bamboo) in the tropical forest of many Asian countries have for generations provided the rural communities with a variety of products ranging from food to raw materials for house construction and handicrafts. Despite their significant contribution to the welfare of millions of people in rural Asia, rattans were neglected as minor forest produce. They are now considered as non-timber forest products and are often referred to as 'green gold' for their unique qualities. Globally, there are about 600 species of rattans under 13 genera, most of them indigenous to South East Asia. Indonesia has 80% share in the international market, with a value of US $ 1.147 billion. All

the rattan species are used by the local people, but 20 species are regularly used for plantation and commercial purposes. India posseses five genera and 51 species, among which Malabar cane (*Calamus reedii*) is the best known. INBAR has identified seven species of rattans for the international market, among which three species are found in India. Birkumar Singh *et al.* (**page 90**) highlight the status, utility, threats and conservation aspects of rattan resources in Manipur.

Turmeric and curcumin: Biological actions

Turmeric (*Curcuma longa*) is a medicinal plant extensively used in Ayurveda, Siddha and Unani medicine. Turmeric is used as a food preservative, spice and colouring agent in Asian countries. It is used for the treatment of various disorders, including sprains and swelling, biliary disorders, anorexia, coryza, cough, diabetic wounds, hepatic disorders, rheumatism and sinusitis in Indian traditional medicine with no toxic symptoms. The main yellow pigment of turmeric is curcumin (diferuloylmethane), which is also the main bioactive compound. Curcumin possesses a wide spectrum of biological and pharmacological activities. Curcumin has beneficial effects on the gastrointestinal, liver, pancreas, cardiovascular and nervous systems. It exerts anti-inflammatory, antioxidant, anticarcinogenic, antimutagenic, anticoagulant, antifertility, antidiabetic, antibacterial, antifungal, antiprotozoal, antiviral, antifibrotic, antivenom, hypotensive and hypocholesteremic activities. The anticancer effect is mainly mediated through its apoptotic activity. Its anti-inflammatory, anticancer and antioxidant roles can be exploited to control rheumatism, cancer and oxidative stress-related pathogenesis. Curcumin is also well tolerated by humans at a very high dose of 8–10 g/day, without any adverse effect. As curcumin is now commercially available, it would be easier to develop new drugs after extensive studies on its mechanism of action and pharmacological parameters. It is expected that curcumin being a nontoxic, naturally occurring, potent antioxidant, will find application as a novel drug to control various diseases. Chattopadhyay *et al.* (**page 44**) review biological actions and medicinal applications of turmeric and curcumin.