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Herbal medicines

In a letter published recently in *Current Science* Tripathi[1] has stressed on the importance of traditional Indian medicines. In the present scenario where 80% of the world population has no access to the benefits of western medicines due to financial constraints, it is hardly necessary to emphasize the relevance of traditional remedies which constitute a major part of the health care system in the developing countries and are also entering the therapeutics in the developed countries. However, most of these drugs are derived from plant products, and a couple of discomforting reports published recently reveal some problems associated with the use of herbal medicines (HM).

In most of the cases HM escape toxicity testing before they are marketed. Some of them contain mercury, lead, arsenic and poisonous organic substances in harmful amounts. Hepatic failure and even death following ingestion of HM have been reported[2]. A perspective study shows that 25% of the corneal ulcers in Tanzania and 26% of the childhood blindness in Nigeria and Malawi were associated with the use of traditional eye medicines[3].

Quantitative variation of the constituents may be very high from batch to batch of a plant material. For example, paeoniflorin content of 12 samples of red peony root (*Paeonia lactiflora*, used as a traditional Chinese remedy for eczema) bought in London was found[4] to range from 0.01% to 4.5% . This makes correct dosing of HM a difficult task.

Sometimes patients use traditional and western medicines simultaneously. The interaction of these two types of drugs *in vivo* may be dangerous. Piperine present in many Ayurvedic formulations is known to increase the toxicity of theophylline, a bronchodilator routinely used by the asthmatics and also of phenytoin, an anticonvulsant[5].

Alarmingly HM, in some cases, are found to be admixed with allopathic medicines. In Leicester Royal Infirmary one sample of traditional Chinese medicine, given to a lady for eczema, was found to contain a steroid[6]. Several undeclared drugs including phenylbutazone, diazepam and corticosteroids were detected in a traditional Chinese cure for arthritis[7].

Safe use of HM is a burning question at present. A project is under way at the WHO Collaborating Centre for International Drug Monitoring in Sweden to classify common toxic ingredients of HM (ref. 8). One government-funded agency in the UK and another in the US have been appointed to investigate complaints from the consumers and to recommend removal of the harmful products from the market. With the increase in the popularity of HM throughout the world, it is necessary to ensure safety of the patients.

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Global warming and forest fires in tropical Himalaya

This is in reference to the article 'Ecology of forest fires in chir pine (*Pinus roxhburghii* Sarg.) forests of Garhwal Himalaya' (R. M. Semwal and J. P. Mehta, *Curr. Sci.*, 1996, **70**, 426–427).

P. roxhburghii indeed is one of the dominant tree species of tropical Himalaya[1]. In general, tropical forests produce nearly two and ten times litter biomass compared to that in temperate and arctic climates, respectively and are thought to have proportionate decomposition capacities under adequate moisture conditions[2]. Higher temperature tends to deplete top soil moisture at a faster rate, and if not

duly replenished, can restrict microbial activity and cause crisp dryness of litter biomass under low-humid conditions favouring forest fires.

In pine forests, needles decompose slowly due to its higher lignin content. Lignin resists microbial attack[3] and is reported to accumulate in the litter, exerting a negative effect on its further degradation[4]. The leaf biomass therefore accumulates in pine forest.

The fires of summer 1995 in pine forests in western and central Himalayas is typical in enormity of magnitude and the extensive floral and avi-faunal losses it caused. The fire was reported along the broad distribution range of *P. roxhburghii* from almost every district in Himachal Pradesh and various locations extending up to Garhwal Himalaya. In Himachal Pradesh, the Dharmshala Circle alone reported 226 forest fires between May to June[5]. The summer also recorded prolonged dry spell and a mean temperature rise of the order of 2–3°C above normal[6].

The anomaly of temperature rise of 2–4°C has been widely discussed under the proposed climatic change, leading to global warming by middle of next century[7]. Drought is one of the chief fears anticipated[7], implying that vulnerability of pine forest to seasonal fire may increase under the situation.

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R. L. Semwal adds:

Our studies on chir pine forests and associated grazing lands in Garhwal Himalaya deal with the effects of forest fire on soil, phytosociology, biomass and productivity, litterfall and litter decomposition and nutrient return through litter. Based on our work and available published literature from this region, presently we are not in a position to establish any precise relationship between forest fires and global warming phenomenon. However, as has been pointed out by Vats, it is true that warming of local atmosphere takes place during severe forest fires. Thus, in-depth studies need to be conducted in this direction to explore any such relationship. Nevertheless, we ought to have a well-thought programme to fight with the wild fires in Himalayan region which incurs environmental and social losses on an unmeasurable scale.

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RESEARCH NEWS

Classifying the kiwi

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Molecular genetics has, in recent years, become an invaluable tool for conservation biologists. Present thinking[1,2] suggests that the higher the genetic variability within a species, the better are its chances for survival, and most work to date has centred around this. There has been substantial debate[1–5] about the importance of genetics in conservation, but many ecologists[6] still believe that population studies or behavioural studies are more useful. In the light of recent work[2,7], however, it seems clear enough that molecular genetics is here to stay in conservation. In a world with limited resources and an overloaded conservation schedule, tough choices have to be made as to which species, and specifically which populations, are to be conserved. These choices would depend on our priorities and current opinion favours retention of genetic diversity[1–5]. If we do assign priorities based on genetic diversity, we obviously need detailed studies in molecular genetics.

Baker and co-workers[7] studied the molecular genetics of brown kiwis in New Zealand. The work is noteworthy for two reasons; firstly, they found levels of genetic differentiation between populations that had not been found in bird populations earlier. Secondly, they showed that the taxonomy of the brown kiwi needed to be reviewed and perhaps changed in the light of their study. This is important because the kiwi is an endangered bird and conservation priorities do need to be assigned.

Molecular genetics can help clarify taxonomic errors because traditional taxonomies depend on morphological characters which may not reflect true genetic distances between species[2]. Since most work has depended on the subjective classification of taxonomists, it is likely to be riddled with errors. The case of the Camden County gopher clearly illustrates this[2].

In 1898, a distinct species of gopher was described in Camden County, Georgia, USA as *Geomys colonus*. The population consisted of very few individuals and was listed as endangered. However, a recent molecular genetic survey showed that this species was not genetically distinct from the more common *Geomys pinetis*, which is found all over USA. In