PREFACE

Traditional systems of medicine were and are used in health care by many countries of the world. For a long time, the knowledge on traditional systems of medicine was confined to the local communities only. It is only during the recent years that much of the traditional knowledge associated with the health care system has been documented and subject to scientific verification through ethnobotanical studies coupled with phytochemical investigations and bio-assays. These studies, in fact, have led to the discoveries of wonder drugs. Although ethnobotanical studies have been carried out in many countries including India, there are many geographical areas where rich traditional knowledge associated with ancient cultures are not yet documented. Dharchula range of Himalayas inhabited by Bhotia communities is one such area where livelihoods of communities are based upon plant resources and unique plant culture. The present studies on “Traditional knowledge of plant resources in Dharchula range: biotechnological potential, conservation and management strategies” was, therefore, undertaken with the objectives: (i) to document the traditional knowledge associated with the plant resources, (ii) to carry out economic evaluation of the plant resources traditionally used, (iii) to assess the conservation status of plant species used, and (iv) to evolve Intellectual Property Rights (IPR) regime of the traditional knowledge documented and associated plant resources and sustainable management of plant resources.

The ethnobotanical surveys have revealed that: (i) over 80 plant species belonging to 40 families are used for fodder, firewood and other household utilities by the Bhotia community, (ii) trading of herbal products of medicinal values form the basis of livelihoods of Bhotia community, (iii) information on uses of several species is new and documented for the first time, (iv) as many as 13 species have biotechnological potential to yield products of considerable economic value, and (v) high taxonomic diversity form the basis of plant culture of the region and this is sustained by high ecological diversity.
Phytochemical data of different species suggest existence of enormous diversity in natural products, which is perhaps associated with high taxonomic diversity. The range of compounds isolated in these plant species is very high and some of the secondary metabolites can be used as taxonomic markers.

The observations on conservation status of species populations suggest that: (i) the number of populations showed decline in their range of distribution, (ii) 33 species can be categorized as vulnerable and near threatened, (iii) 3 species are critically endangered and 2 species are endangered, (iv) 18 species are likely to fall under vulnerable category if protective measures are not taken immediately, and (v) the populations of at least one species which were classified as rare and endangered at one time have now become abundant in some localities due to reduced biotic interference like decrease in grazing by livestock and abandonment of cultivation by local communities.

The economic evaluation of traditionally used plant resources suggests that: (i) the value of direct benefits estimated is of the tune of over Rs. 68,000 per ha per year in the year 2003 besides the indirect benefits such as ecological services and goods, and (ii) the area has vast economic potential if the resources are managed sustainably.

It is also revealed that traditional knowledge possessed by the Bhotia community and associated plant resources require IPR protection in the name of community by recognizing them as collective invention and provision of adequate compensation for the use of their traditional knowledge to ensure appropriate returns to the community.

My observations also reveal that the stakeholders’ participation in devising management strategy is critical. It has, therefore, been suggested that collective rights of harvesting to be conferred upon the local inhabitants in perpetuity to be renewed periodically depending upon the existing status of the resources in natural habitat to ensure sustainable harvesting.
It is certified that the work embodied in this thesis entitled “Traditional knowledge of plant resources in Dharchula range: biotechnological potential, conservation and management strategies” is original and has been carried out by the author and that it has not been submitted in full or in part for any other diploma or degree of this or any other university.

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