ABSTRACT

The state Arunachal Pradesh located in north eastern part of India is inhabited by various tribal communities who are mostly dependent on forests. The Apatanis, dominated in Ziro valley or the Apatani Plateau are well known worldwide for their rich Indigenous Knowledge System (IKS) and capable of managing forests for their socio-economic need. The paddy-cum-fish cultivation practice followed by the Apatanis is a unique agricultural system. The forests of Ziro valley are rich repository of NTFPs yielding species and the local people are dependent on various forest resources for their livelihood and income generation. Apatanis are well known for preserving their traditions and cultures, and their traditional practices of harvesting forest resources on a sustainable basis exemplifies their position as efficient resource managers. For documentation of various NTFPs used by the communities along with the associated IKS and assessment of population status of the available NTFPs in the adjacent community forests, a study have been conducted in the Ziro valley.

Records and enumeration of 147 species of plants used as a source of NTFPs is provided here which includes 138 species of Angiosperms, 1 species of Gymnosperm, 6 species of Pteridophytes and 2 species of Fungi. The Angiosperms represented by 58 families and 99 genera where 121 species are Dicotyledons and 17 species are Monocotyledons. The habitat wise grouping shows that the maximum species used are herbs (63 spp.) followed by trees (35 spp.), shrubs (31 spp.), climbers (12 spp.) and fungi (2 spp.). The analysis of taxonomic diversity of the species revealed that the families like Rosaceae, Poaceae, Fagaceae, Asteraceae, Arecaceae, Lauraceae, Lamiaceae, Solanaceae are the most used ones with at least 4 species each. The Poaceae and Asteraceae are recorded as the top most preferred families with 10 species in each. The lone Gymnospermic species represented by Pinus wallichiana was found as one of the very useful NTFP producing species.

All the species are classified under 12 distinct categories of NTFPs species on the basis of their utility patterns. The food plants category comprising of vegetable, fruits, salt making plants and mushrooms is found as the major group with 88 species followed by medicinal plants (56 spp.), fodder plants (12 spp), firewood (15 spp), house building materials (14 spp), household items (7 spp.), dyes (4 spp), gums (4 spp), ritual and festivals (19 spp), broom and thatches (5 spp), fibre (5 spp) and
miscellaneous (14 spp). Details information of the uses has been provided category wise listing all species in each group.

Three community forests stands selected for understanding the species composition and population status of the NTFPs showed a good floristic diversity representing typical temperate vegetation. Occurrence of a total 138 species under 70 families and 116 genera with minimum representations of 100 species in each study stand has been found. Out of the total species recorded, more than 50 important NTFP yielding species have been recorded comprising all the habit forms. The present study revealed that all the three forests stands harbour numerous NTFPs having socioeconomic value that supports the livelihood of the communities. Although highest diversity of NTFP have been found in the Nyili forests stand, the density of population was found better in Dura and Gyachi forests stands.

Many of the NTFPs collected and harvested from the forests are marketed in local and outside markets. Some of the NTFPs provide a good sustenance to the local communities in regular basis. The species like *Allium hookerii, Piper pedicellatum, Actinidia callosa, Castanopsis hystrix, Phoebe goalparensis, Phyllostachys bambusoides* etc. are highly priced in the market. The raw mature fruits of *Phoebe goalparensis* and *Magnolia champaca* preferred for pickle and other food stuffs have highest market value and a vendor may earn a good amount by selling of these fruits only.

The Apatanis are found intermingled with the forest resources for fulfillment of various cultural and traditional requirements and are very observant of their rituals and festivals. Their belief on these rites and rituals is deeply connected with their everyday life. Major requirements for preparation of sacred altar and other ritual needs are fulfilled by some selected species such as *Calamus acanthospathus, Castanopsis hystrix, Castanopsis tribuloides* and *Phyllostachys bambusoides* and strongly attached to the culture and tradition of Apatanis. The other species having ritual and cultural values are *Prunus persica, Machilus vilosa, Molineria capitulata, Kavalama urens, Saccharum arundinaceum*. As per their traditional knowledge and cultural linkages, the Apatanis managed and conserved various forests resources that are socio-culturally and ritually closely attached to the community. Species such are *Quercus* spp., *Ficus* spp, *Pyrus* spp, *Berberis aristata, Polygonum, Machilus vilosa, Kavalama urens* etc. are preserved and conserved in sacred grooves based on the
totem and taboos. These sacred groves have been maintained from the centuries and any kind of cutting and extraction of plants and their parts is totally restricted.

Overall the present study has revealed that the Apatanis still prefer to collect and uses various forest species to fulfill their physical, cultural and economic need and large number of species yielding NTFPs have been found socioeconomically strongly attached to the community. They are found conscious in selecting resources for their nutrition. Many of the vegetable and fruit plants can be used for marketing to generate revenue either in the raw form or in preserved. As the community forests are found rich in NTFP yielding species particularly the tree species, they can be managed in more efficient way to increase the productivity and economic gain. The promotion and marketing of bamboo and cane products used as household items would be another good option for the community as these products have wider and higher market value. The cultivation and management of some high value medicinal plants can also be taken up in the community forests for livelihood support.