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“Filling gaps and removing traps
for sustainable resource management”

Limitations and Impracticality of the Design-Based Sampling Method for Medicinal Plant Inventory in High Mountain Regions

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Abstract

Realizing the significant contribution of medicinal and aromatic plants in healthcare and cosmetic industries, the efforts have been put toward sustainable management of these natural products. Despite some attempts to address the issues of harvesting regime, socio-economic analyses and ethnobotanical surveys in relation to biodiversity conservation, the status quo from resource management perspective has not been changed significantly. As sustainable management requires reliable and scientific information on resource base, some design-based sampling methods adopted from forest or botanical inventories have been applied at different scales and time periods in different parts of the world to support their sustainability. Three resource inventories of different scales focusing on herbaceous medicinal plants from similar geographical areas of high mountain region of Nepal have been chosen for this studies to evaluate their validity from practical and scientific perspectives. Two of these inventories were carried out as a major part of a biodiversity conservation programs run by two development agencies in different districts. The third one was part of data collection for a research work by the principal author. All three inventories have basically selected the systematic sampling method in different variations. This paper presents the analyses of statistical rigorousness, reliability from practical view, uniformity and use of inventory data in resource management and research from all these three inventories. An exploratory method based on statistical analysis and designs in relation to cost-effectiveness has been applied for comparative analysis. This study concludes to conduct an extensive research on model-based sampling method to apply for medicinal plant inventory.

Keywords: Inventory, medicinal and aromatic plants, sustainable management