

Diversity, distribution and conservation of medicinal plants in Nepal

by

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The thesis comprehensively studies a very important topic: the author synthesizes here different aspects related to diversity, distribution, uses and conservation of medicinal plants in Nepal. Medicinal plants are commonly used in the traditional medicine in this country. The demand for these plants is rapidly increasing, which raises questions of their sustainable use and friendly harvesting methods. The threat of their extinction is amplified by the loss of their habitats, the speed of which is now increasing. Therefore, studies of their availability, population dynamics and related issues is very important, as it helps us to avoid their losses.

The results presented here are based on seven papers. Two of them were already published in very good journals: one in *J. Ethnopharmacology* (IF₂₀₀₉ = 2.322) and one in *Flora* (IF₂₀₀₉ = 1.439), which is a good result for a PhD thesis, I think. Some of the yet unpublished papers will have to be more focused in parts, I am afraid, to become publishable – I feel that sometimes they are too detailed and maybe too long for a journal, but I have no experience in publishing in these types of journals (maybe electronic appendices, as sometimes used also here, might be the solution?).

The thesis is slightly extraordinary for a thesis in ecology in that basically no hypotheses are being tested here. However, I understand that this special topic cannot be dealt with in this way. Bearing in mind the potential importance of Nepalese medicinal plants for world's medicine, I think this is excusable.

One of the issues to be stressed is the enormous effort by collecting the empirical data in extremely remote areas of Nepal. The ranges of newly published (are they really *newly* published?) plant species on p. 22-24 of paper I and in paper II are really impressive. In my view, the thesis is very carefully written. The graphical presentation was very carefully prepared, except of that on p. 29, where the x-axis legend is illegible. I have found quite a few misprints, most of which were probably because the thesis was written in Czech and English, neither of which is author's first language. In some of the yet unpublished parts, the English language would deserve some corrections.

I have several points to be addressed:

1. How is it with the intellectual property rights, when results on Nepalese medicinal plants are published in international journals – did you somehow deal with this issue?
2. On p. 28, hill = Churia range and mountain = Midhills – is this correct? Why did the author use the terminology “hill – mountain”?
3. Would the author have an idea, what is the proportion of medicinal plants out of the total number of plant species, as a function of altitude? Is it roughly constant, or is there a trend?

4. The altitudinal dependence of medicinal plant species richness is interesting, but lots of other analyses might be useful to be performed. Some suggestions:
 - a. what are the typical habitats, where these plants occur - maybe a matrix with habitats as rows, plant species as columns and elements being some categorical estimates of the degree of presence of the plant in the habitat might help;
 - b. what is the degree of rarity of these plants;
 - c. what is the likelihood that these plants can be mass-grown.

These and similar questions might be topics for further research - does the author feel they might be successfully dealt with?

5. According to author's own experience, what is the real rate of success, when these plants are being used for curing individual diseases? Can we understand them like real medicines (with a great rate of success), or is their effect closer to that of - e.g. - homeopathic substances? Can they still help in advanced stages of the diseases? I understand one cannot generalize this completely, but is there at least some indication of what is the case?

Despite all the comments above I strongly feel the thesis is very good, its results may have a very important practical use, and suggest it can be defended.

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Prague, November 1, 2011