THREATENED HERBAL HERITAGE OF TRIBAL LAND JHARKHAND

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Introduction

There is now a general and gradual realisation of a stark reality that several thousand species of plants and animals are threatened; many are fast vanishing and a few are already extinct. The real threat has now developed is the potential danger from increasing human population during the last several decades due to development in various spheres. Species of flora are dying out also due to certain natural phenomenon such as land upheavals, volcanic eruptions, glaciation, protracted periods of drought or even rain, forest fires and change in the habitat. Further, the general awakening to resort to natural herbs for the treatment of human/animal ailments is resulting in unscrupulous exploitation of these herbs. These influences are so complex that it is not an overstatement to refer to them as being rooted in the contemporary human condition (Soule, 1991).

Floristic studies

A knowledge of flora is essential for evaluation of threat and rarity. Hence, the Botanical Survey of India organised a symposium on 'Floristic Studies in India' in 1977. Subsequently, several fascicles on Flora of India stimultated floristic and taxonomic studies in our country. Consequently, provisional lists of endangered species were prepared for the following regions :

(i) North-Western Himalayas
(ii) Western and Central India
(iii) Eastern India
(iv) Peninsular India
(v) Andaman and Nicobar Islanads
(vi) Special groups
(vii) Cryptogams

Lists of species have been prepared for U.P. including Garhwal (now in Uttaranchal), North-West Himalayas, Gujarat, Rajasthan, Madhya Pradesh, Orissa, West Bengal, Meghalaya, Arunachal Pradesh, Sikkim, Assam, Tamil Nadu, Andhra Pradesh (Tirupati Hills), Maharashtra and Andaman & Nicobar Islands; but, no such list has been prepared for flora of Bihar/Jharkhand. To be specific, Medicinal Plants have not been looked in totality in respect of Jharakhand State except by Prasad (1988). Also a list of 315 medicinal plants of Santhal Parganas (Jharkhand) have been presented in his thesis by Kaushal Kumar (1997) but only a passing reference about threatened status and conservation. There was an effort to list the herbs of undivided Bihar by Singh (1955). Another attempt was after four decades by Unniyal (1995).

An attempt is being made here to discuss the threatened status of medicinal herbs of Jharkhand relying on the author's past experiences and exposure in various local workshops and seminars.

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Threatened herbal wealth of Jharkhand

The International Union for Conservation of Nature (IUCN) has categorised conservation-prone plants as below :

(i) Threatened plants
(ii) Out of danger
(iii) Indeterminate
(iv) Endemic
(v) Extinct.

The above classification may also be applied to medicinal plants as discussed herein after in respect of herbs of Jharkhand.

Threatened medicinal plants may be put into two categories :

E : Endangered
V : Vulnerable

Endangered

Included in this list are taxa whose numbers have been reduced to critical level or whose habitats have become drastically changed as much as they are in danger of extinction. Some of them are as below :

(1) Apocynaceae :
(a) *Rauvolfia serpentina,* Benth ex Kurz in Singhbhum forests near Kumdih F.R.H.; Rajmahal Hills near Taljhari forests (plant is locally known as 'Chandogad').
(b) *R. tetraphylla* Linn. was successfully introduced in Nawada forest near Bishnugarh on way to Konar dam, (Hazaribagh) by Forest Research Division.
(2) Magnoliaceae :
Michelia doltsopa Buch-Ham. whose fruits and seeds are prized by the local tribals for healing cracks in feet in Karampada and Tholkobad areas (Singhbhum).
(3) Asclepiadaceae :
Sarcostemma acidum (Roxb) Voight. (Somlata, Soma) is disappearing from its habitat in Horhap forest (Ranchi).
(4) Gnetaceae :
Gnetum scandens Roxb. in Saranda (Singhbhum) needs special protection.

Vulnerable

Species likely to slide into endangered category in near future if unhealthy factors continue operating ; that is, their population is decreasing due to over-exploitation, extensive destruction of habitat or other environmental disturbance. A few examples are given here under :

(1) Gentianaceae :
Canscora decussata Roem & Sch. (Sankhpuspi)
(2) Acanthaceae :
Andrographis paniculata Nees. This plant is under serious threat throughout its range of occurrence as last named species.
(3) Bombacaceae :
Salmalia malaberica Schott & Endl. Matchstick factories are languishing because of non-availability of this species.
(4) Liliaceae :
(a) *Chlorophytum arundnaceum* Baker. Pretty 'Safed musli' having white star like flowers is becoming rare in the Sal forests of Jharkhand.
(b) *Gloriosa superba* L. Kalihari (Langalika) which used to be

commonly available in Hazaribagh National Park area is being pushed into endangered category.

Out of danger :

New researches are being carried out at national and international level to find out herbs towards the cure of several ailments esp. Malaria, Typhoid, Malignancy, HIV, AIDS, etc., besides common cough and cold due to allergy. Consequently, no medicinal herb shall fall in this category because there is a positive inclination to switch over to natural remedies from allopathic remedies and there is negligible effort for conservation and/or to supplement the existing resources by plantation.

Indeterminate

Taxa that are suspected of belonging to any one of the above categories but for which insufficient information is currently available, e.g. *Clitoria terneata* L. (Aparajita), *Tinospora cordifolia* Miers (Amrita, Gurich) etc.

Endemic

Taxa which have regional occurrences in specific areas shall fall in this category such as *Sarcostemma acidum* (Roxb) Voight., etc.

Extinct

Strychnos nux-vomica L. may be classed in this category. Yet this author has seen fresh seeds being sold in Morabadi on roadside (Ranchi), but only once. When questioned about the source, the villager said that he got these from the nearby village, but refused to show that place. Out of ten seeds purchased by the author, only two sprouted. They are growing in earthen pots.

Conclusions and recommendations

There is no doubt that herbal heritage of this tribal land Jharkhand has fallen into a system of diminishing returns. Many areas have been threatened with disturbances on the ground, under the ground and above the ground. On the ground, the relentless spread of agriculture displaces and destroys many species especially in Santhal Parganas and Singhbhum by 'jhumming'. The tapping of vast mineral wealth under the ground causes serious concern to the vegetation above ground. The wide spread pollution above the ground contributes to the diminishing herbal population.

Creation of herbal sanctuaries on the lines of Wildlife Sanctuaries would help in conserving the herbs. It is suggested that Parasnath hill, Netarhat Plateau, lchadag hills (Ranchi District) and Ligirda swamp (Sarada forests) may be declared as herbal sanctuary to start with, followed by Trikuti hills (Deoghar) and Rajmahal hill sanctuaries. Also, establishement of a 'living herbarium' of natural herbs currently in demand, on the lines of arboretum, shall go a long way to preserve the gene pool of herbs in Jharkhand.

There are more than five hundred medicinal herbs in Jharkhand, the list of which is being published by the author seperately under the title Gene pool of herbs of Jharkhand. Out of these, different species falling in the categories discussed above are listed here as Appendix I to V. This list is just preliminary. Assessment may have to be made by a team of research

workers for each one of such species regarding :

(a) actual present status,
(b) distribution,
(c) habitat and ecology,
(d) potential value,
(e) descriptions and illustrations available and date of last plantation.

The State Government and Central agencies as well as Central Government will have to be approached for Jharkhand's herbal welath to survive and to contribute to the State's economy in a much more meaningful way.

Appendix - I

List of endangered species (E)

1. **Apocynaceae** :
   (i) *Rauvolfia serpentina,* Benth ex Kurz.
   (ii) *R. tetraphylla* L.
2. **Asclepiadaceae** :
   Sarcostemma acidum (Roxb) Voight.
3. **Caesalpineaceae** :
   Saraca asoca (Roxb) Dewilde.
4. **Gnetaceae** :
   Gnetum scandens Roxb.
5. **Liliaceae** :
   Scilla hyacinthina (Roth) Macbride.
6. **Magnoliaceae** :
   Michelia doltsopa Buch.-Ham.
7. **Papilionaceae** :
   Psoralea corylifolia DC.

Appendix II

List of Vulnerable species (V)

1. **Acanthaceae** :
   Andrographis paniculata Nees.

2 **Apocynaceae** :
   Holarrhena antidysenterica Wall.

Contd...

3. **Asclepiadaceae** :
   Gymnema sylvestre Br.
4. **Anacardiaceae** :
   (i) *Spondias pinnata* (L.f.) Kurz.
   (ii) *Lannea coromandelica* (Hout) Merril.
5. **Combretaceae** :
   (i) *Terminalia belerica* Roxb.
   (ii) *T. chebula* Retz.
6. **Celastraceae** :
   Celastrus paniculata Willd.
7. **Convolvulaceae** :
   Evolvulus alsinoides.
8. **Gentianaceae**
   Canscora decussata Roem-Sch.
9. **Liliaceae**
   Gloriosa superba L.
10. **Menispermaceae** :
    (i) *Tinospora cordifolia* Miers.
    (ii) *Cissampelos pareira* Linn.
11. **Rubiaceae** :
    Randia dumetorum Lamk.
12. **Sterculiaceae**
    (i) *Sterculia urens* Roxb.
    (ii) *S. foetida* Linn.
13. **Verbenaceae** :
    (i) *Gmelina arborea* Roxb.
    (ii) *Adina cordifolia* Hook. f.

Appendix III

List of Indeterminate species (I)

1. **Anacardiaceae** :
   (i) *Buchanania lanzan* Spreng.
   (ii) *Semecarpus anacardium* Linn. f.

2. **Euphorbiaceae** :
   (i) *Phyllanthus fraternus* Webster
   (ii) *Emblica officinalis* Gaertn.
   (iii) *Mallotus philippinensis* Muell.
   (iv) *Croton roxburghii* Balak.

3. **Geraniaceae** :
   Biophytum sensitivum (Linn) DC.

4. **Lecythidaceae** :
   Careya arboea Roxb.

5. **Labitae** (Lamiaceae) :
   (i) *Leucas cephalotus* Spreng.
   (ii) *L. plukenetii* Spreng.

6. **Leguminosae** :
   (i) *Memosa pudica* Linn.
   (ii) *Abrus precatorius* L.

7. **Meliaceae** :
   Chloroxylon swieteni, DC.

8. **Malvaceae** :
   Abutilon indicum (Linn) Sw.

9. **Oxalidaceae** :
   Averrhoa carambola Linn.

10. **Simarubaceae** :
    Ailanthus excelsa Roxb.

Appendix - IV

List of Endemic species (END)

1. **Apocynaceae** :
   Rauvolfia serpentina Benth ex Kurz.
   (Rajmahal hills in Sahebganj and Saranda in Singhbhum)

2. **Asclepiadaceae** :
   (i) *Pergularia extensa* N.E.Br.
   (In village of Palamau)
   (ii) *Sarcostemma acidum* (Roxb) Voight.

3. **Berberidaceae** :
   Berberis asiatica Roxb.
   (Parasnath about 1,220 m)

4. **Compositae** (Asteraceae) :
   Saussurea candicans, Clarke
   (Hills of Kolhan, Singhbhum).

5. **Coniferae** :
   Pinus roxburghii, Sargent (Netarhat).

6. **Euphorbiaceae** :
   (i) *Macaranga indica* Wight.
   (ii) *M. peltata* Muell Arg.
   (Deep ravines of Singhbhum)
   (iii) *Antidesma bunius* Spreng.
   (Parasnath near the top).

7. **Gnetaceae** :
   Gnetum scandens, Roxb.
   (Saranda in Singhbhum)

8. **Labiatae** (Lamiaceae) :
   Dysopylla andersoni Prain. (Tirilposi savannah at 600 m in Singhbhum).

9. **Lauraceae** :
   Machilus macarantha Nees. (Evergreen forest near ravines in Palamau ascending to Netarhat 910 m).

10. **Malvaceae** :
    Abelmoschus moschatus Medicus (Hundrufall of Ranchi) Syn. *Hibiscus abelmoschus* L.

11. **Menispermaceae** :
    (i) *Tinospora sinensis* (Lour), Merril. (Kathikund, Gopikandar in Santhal Parganas)
    (ii) *T. cordifolia* Miers (Rajmahal hills).

12. **Meliaceae** :
    Aglaia roxburghiana Miq.
    (Pithoria in Ranchi).

Contd...

Contd...

13. **Oleaceae** :
Schrebera swieteniodes Roxb.
(Saranda in Singhbhum).

14. **Polygonaceae** :
Polygonum alatum, Ham. (Parasnath).

15. **Ranumculaceae** :
(i) *Clematis gouriana* Roxb. (Kundrugutu ravine of Singhbhum).
(ii) *Thalictrum foliosum* DC. (Ichadag hill in Ranchi and Netarhat).

16. **Rhamnaceae** :
Rhamnus dahurieus Pall
(Netarhat Plateau).

17. **Rosaceae** :
Rubus moluccanus, L.
(Pendra valley, below Netarhat).

18. **Rutaceae** :
Zanthoxylum budrunga, Wall
(Bishunpur in Ranchi).

19. **Scrophulariaceae** :
Lindenbergia urticaefolia, Lehm.
(Pithoria in Ranchi, Parasnath).

20. **Solanaceae** :
Datura stramonium Linn.
(Bishunpur Ghat in Ranchi).

Contd...

21. **Tamaricaceae** :
Tamarix dioica Roxb (Rajmahal hills near and in the Ganges in Sahebganj).

22. **Tiliaceae** :
Grewia flavescens, Juss
(Pachambha in Giridih).

23. **Urticaceae** :
(i) *Girardinia zeylanica*, Decaisne. (Pithoria, above 600 m in Ranchi).
(ii) *Laportea crenulata*, Gaud (Deep shady ravines of Karampada forest in Singhbhum).

24. **Verbenaceae** :
Vitex glabrata R.Br. (Rajmahal hills in Sahebganj).

Appendix V

List of Extinct species (Ex)

1. **Loganiaceae** :
Strychnos nux-vomica, L. (Kuchala)?

2. **Palmaceae** :
Caryota urens, L. (Mari, Indian sago-palm) ?

3. **Asclepiadaceae** :
Sarcostemma acidum (Roxb.) Voight. (Kulutuar, Somlata)?

SUMMARY

The present paper deals briefly about threatened herbal flora of Jharkhand. The threatened status has been classified as suggested by IUCN for conservation-prone plants. Eight species and 7 families have been listed under endangered class, while 18 species of 13 families have been included in vulnerable category. Indeterminate category has 16 species spread among 10 families. Under endemic category are listed 30 species of 24 families. It has been suggested that process should be started for the creation of 'herbal sanctuaries' at different places to conserve the gent pool of herbs of Jharkhand.

आदिवासी भूमि झारखण्ड की विलुप्त खतरे में आई जड़ीबूटियों का पितृदाय

एम०के० जयपुरियार

सारांश

प्रस्तुत अभिपत्र में झारखण्ड के विलुप्ति खतरे में आई औषधीय पेड़पौधों का संक्षेप में विवेचन किया गया है । विलुप्ति

खतरे की स्थिति का वर्गीकरण संरक्षण-उन्मुख पादपों के लिए दिए गए सुझावों के अनुसार किया गया है । आठ जातियां और सात कुल संकटापन्न श्रेणी में रखे गए हैं जबकि तेरह कुलों की अठारह पादप जातियों को परजेय श्रेणी में लिया गया है । अनिश्चित श्रेणी में दस कुलों में फैली हुई सोलह जातियां रखी गई हैं । स्थानसीमित श्रेणी के अन्तर्गत चौबीस कुलों की तीस जातियां सूचीबद्ध की गई हैं । यह सुझाव भी दिया गया है कि झारखण्ड के पौधों के जीन संचय को संरक्षित करने के लिए भिन्न-भिन्न स्थानों पर औषध पादप शरण्य बनाने के लिए प्रक्रिया को शुरू कर दिया जाना चाहिए ।

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