

TALISAPTRA: ONE NAME, THREE BOTANICAL SOURCES- A CRITICAL REVIEW OF IDENTITY CONTROVERSY AND CONTEMPORARY CHEMICAL FINGERPRINTING EVIDENCE

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ABSTRACT

Tālisapatra is an important aromatic *Himalayan* drug used in *Ayurvedic* practice, particularly in disorders involving the respiratory and gastrointestinal systems. However, its botanical identity has historically been controversial, with *Abies webbiana* and species of *Taxus* being associated with the drug name *Tālisapatra/Tālisapatrī* in Indian medicinal literature. The problem is clinically and pharmacognostically relevant because dried and powdered leaves of *Abies webbiana* and *Taxus baccata* can be difficult to distinguish, while their chemical compositions, pharmacological profiles and toxicological characteristics are substantially different. In the present review, three Himalayan or Himalayan-associated taxa—*Abies webbiana* (*Abies spectabilis*), *Taxus baccata*, and *Rhododendron anthopogon*—are evaluated. The review integrates *Ayurvedic* identity, synonyms, distribution,

morphology, useful part, Rasapañcaka, Karma, therapeutic indications, formulations, pharmacognostic considerations, phytochemical constituents, pharmacological evidence and safety considerations. Particular attention is given to the comparative chemical-fingerprinting study of Vadivel et al. (2018), which directly compared *Abies webbiana* with *Taxus baccata* using UV–Visible spectroscopy, FT-IR, NMR, HPTLC and HPLC.^[1] The study demonstrated

clear chemical differences between the two drugs, including total phenolic content, diagnostic spectroscopic peaks, HPTLC R_f values and HPLC retention profiles. *Rhododendron anthopogon* represents a different evidentiary category. It has important Himalayan ethnomedicinal and aromatic uses and has been investigated for phytochemical, antimicrobial and essential-oil properties, but it has not been incorporated into the same direct comparative fingerprinting framework used for *Abies webbiana* and *Taxus baccata*. Baral et al. (2014) reported qualitative phytochemical and antimicrobial characterization, whereas subsequent essential-oil investigations have demonstrated considerable chemical variability.^[2] While *Abies webbiana* and *Taxus baccata* have been directly fingerprinted against each other (Vadivel et al., 2018), no study identified in the present literature search has included *Rhododendron anthopogon* in a comparative chemical fingerprinting analysis; this asymmetry itself is examined as a research gap in this review. The evidence indicates that *Abies webbiana* has the strongest direct correspondence with the *Ayurvedic* concept of *Tālisapatra*, *Taxus baccata* requires careful differentiation because of its taxine toxicity and its historical association with the controversial identity of *Tālisapatra*, while *Rhododendron anthopogon* should presently be regarded primarily as a Himalayan ethnomedicinal comparator rather than automatically equated with classical *Tālisapatra*.

KEYWORDS: *Tālisapatra*, *Abies webbiana*, *Abies spectabilis*, *Taxus baccata*, *Rhododendron anthopogon*, pharmacognosy, phytochemistry, HPTLC, HPLC, chemical fingerprint.

INTRODUCTION

Dravyaguna Vijñāna provides a systematic framework for understanding medicinal substances through their botanical identity, nomenclature, morphology, habitat, useful part, *Rasa*, *Guṇa*, *Vīrya*, *Vipāka*, *Karma*, *doṣa* action, therapeutic indications and appropriate formulations. For a medicinal plant whose identity is controversial, however, pharmacological interpretation cannot be separated from pharmacognostic authentication.

Tālisapatra is a particularly important example. In Indian medicinal practice, *Abies webbiana* has traditionally been identified with *Tālisapatra* and is used mainly for *Kāsa*, *Śvāsa*, *Aruci*, *Agnimāndya*, *Hikkā*, *Chardi* and other disorders. Contemporary *Ayurvedic* and pharmacognostic literature continues to use *Abies webbiana* as the botanical source. The Central Council for Research in *Ayurvedic* Sciences (CCRAS) has also documented *Abies webbiana* and *Taxus baccata* as two plants historically considered under the drug name

Tālisapatra, reflecting the longstanding identity controversy.^[3] The botanical nomenclature of *Abies webbiana* has subsequently undergone clarification. POWO currently accepts *Abies spectabilis* (D.Don) Mirb. and lists *Abies webbiana* Lindl. as a synonym.

The identity problem becomes more important when dried leaves are used. Vadivel et al. (2018) specifically investigated *Abies webbiana* and *Taxus baccata*, noting that the fresh plants are morphologically distinguishable but dried or powdered material may be difficult to differentiate. They consequently developed chemical fingerprints using multiple analytical platforms.

The third species considered in this article, *Rhododendron anthopogon*, is an aromatic Himalayan shrub commonly known as Sunpati in Nepal. It is used traditionally for respiratory, digestive and other ailments and is extensively employed as incense. Its inclusion is valuable because it represents another aromatic Himalayan medicinal plant with respiratory and digestive ethnomedical associations, while simultaneously illustrating the difference between an established *Ayurvedic* drug identity and an ethnomedicinally important but less clearly standardized botanical drug.

AIMS AND OBJECTIVES OF THE STUDY

The present article aims to critically evaluate three botanically distinct of *Talisapatra*.

- To establish the botanical and nomenclatural identity of *Abies webbiana* [*Abies spectabilis*].
- To review the historical association of *Taxus baccata* with *Tālisapatra*.
- To assess the ethnomedicinal and phytochemical significance of *Rhododendron anthopogon*.
- To examine the direct chemical fingerprinting evidence comparing *Abies webbiana* and *Taxus baccata*.
- To assess the current evidence regarding *Rhododendron anthopogon* and identify the absence of a three-species comparative fingerprint.

Botanical profile: *Abies webbiana* [*Abies spectabilis*]^[4]

Name: *Abies webbiana*

Current accepted taxonomic name: *Abies spectabilis*.

Family: Pinaceae

Habit: Evergreen Himalayan conifer

Common English name: Himalayan fir / Indian silver fir

Ayurvedic drug name: *Tālisapatra* / *Tālisapatram* / *Tālaśa*

Useful part: Leaf/needle

POWO currently recognizes *Abies spectabilis* as the accepted species and *Abies webbiana* as a synonym.^[5] The natural distribution extends from northern Afghanistan through the western and central Himalaya to Nepal and Tibet.

Pharmacognostic Description of *Abies webbiana*

Abies webbiana is a large evergreen conifer. The leaves are linear, flattened, needle-like and arranged along the branches. In crude form the leaf drug is aromatic and characteristic. The leaves constitute the principal medicinal part.

The pharmacognostic importance of the drug lies particularly in the authentication of the leaf powder. CCRAS documentation has described microscopic features of the leaf including a relatively thick-walled epidermis with thick cuticle and sclerenchymatous hypodermal tissue.

The similarity between dried *Abies* and *Taxus* leaves is a major quality-control problem. This is precisely why microscopy should be combined with chromatographic or spectroscopic authentication rather than relying only on gross morphology.

Rasapanchaka

Rasa: Tikta, Kaṭu; some secondary sources also describe Madhura

Guṇa: Laghu, Tīkṣṇa, Rūkṣa

Vīrya: Uṣṇa

Vipāka: Kaṭu

Doṣa karma: Kapha-Vāta hara

Principal Karma: Dīpana, Pācana, Kāsa-hara, Śvāsa-hara, Rucya, Krimighna, Mukharogahara

Therapeutic Applications: Kāsa, Śvāsa, Hikkā, Chardi, Aruci, Agnimāndya, Mukharoga, Krimi, Gulma, respiratory congestion and chronic bronchitic conditions, inflammatory conditions, digestive complaints. The plant is also described as carminative, stomachic, expectorant, decongestant, antispasmodic and antiseptic in traditional medicinal literature.

Modern Phytochemistry of *Abies webbiana*

The leaves contain a chemically diverse mixture of volatile and non-volatile constituents. Monoterpenes and other volatile terpenoids, flavonoids, biflavonoids and biflavonoid glycosides, phytosterols, diterpenoid constituents, glycosides, phenolic compounds, alkaloids.

A notable isolated compound is **1-(4'-methoxyphenyl)-aziridine**, reported as a new alkaloid from the leaves of *A. webbiana*. The study described this as the first experimental report of an alkaloid isolated from this plant.

Botanical Profile: *Taxus baccata*^[6]

Taxonomy

Botanical name: *Taxus baccata* L.

Family: Taxaceae

Order: Pinales

Common name: English yew / common yew

Medicinal part reported in Indian literature: leaves; other plant parts have different phytochemical significance.

POWO currently accepts *Taxus baccata* L. as a distinct species. Its native range extends across Europe, parts of western Asia and North Africa.

It should be distinguished from the Himalayan yew complex. Modern taxonomic literature emphasizes that Himalayan *Taxus* material has historically been inconsistently labelled as *T. baccata*, *T. wallichiana*, *T. baccata* subsp. *wallichiana*, *T. contorta* and related names. This taxonomic uncertainty is particularly important when interpreting old phytochemical reports.

Historical Ayurvedic Association of *Taxus baccata* with *Tālisapatra*

The relationship between *Taxus* and *Tālisapatra* represents a well-known drug-identity controversy.

Abies webbiana and *Taxus baccata* as plants considered under the Ayurvedic drug *Tālisapatra*, while noting different traditional medicinal applications.^[7]

Kew's Medicinal Plant Names Services likewise records names such as *Tālisapatra*, *Tālisapatra*-bheda and *Tālisapatrī*-related names in connection with *Taxus* medicinal sources.

Therefore, it is historically inaccurate to state simply that *Taxus baccata* has never been associated with *Tālisapatra*.

Rasapanchaka of *Taxus baccata*

Rasa: Kaṭu, Tikta, Madhura

Guṇa: Snigdha, Guru

Vīrya: Uṣṇa

Vipāka: Madhura

Karma: Tridoṣaśāmakā, Śvāsahara, Kāśahara, Dīpana, Rucikara, Hṛdya, Krimighna

Traditional indications: Śvāsa, Kāsa, Hikkā, Aruci, Chardi, Hṛdroga, Mukharoga, Agnimāndya, Gulma.

Phytochemistry of *Taxus baccata*^[8]

Taxus baccata is chemically very different from *Abies webbiana* despite the superficial similarity of their dried leaves.

Taxanes/toxoids, taxine alkaloids/pseudoalkaloids, paclitaxel and related compounds, baccatin derivatives, cephalomannine, flavonoids, lignans, diterpenoids.

The genus *Taxus* is particularly significant because it contains the taxane diterpenoid **paclitaxel**, together with precursors such as baccatin III and 10-deacetylbaccatin III.

The taxane literature is extensive, with hundreds of taxoids identified across the genus. Importantly, chemical profiles vary between species, plant parts, geography, age and environmental conditions.

Taxine Toxicity of *Taxus baccata*

The pharmacological significance of *Taxus baccata* cannot be discussed without addressing toxicity.

The plant contains **taxine A and taxine B**, with taxine B being particularly important in acute poisoning. Taxine alkaloids interfere with cardiac ion-channel function and can produce negative inotropy, conduction disturbances, hypotension and potentially fatal arrhythmias.

The presence of a clinically useful compound in a toxic plant does not make the crude plant preparation automatically safe.

Chemical Fingerprinting of *Abies webbiana* versus *Taxus baccata*^[9]

Vadivel *et al.* conducted a particularly important comparative study because it directly addressed the identity problem between *Abies webbiana* and *Taxus baccata*. Both plants have been associated with the common medicinal name *Tālisapatra*, and dried leaves can become difficult to distinguish morphologically.

The study employed

- UV–Visible spectroscopy;
- FT-IR spectroscopy;
- NMR spectroscopy;
- HPTLC;
- HPLC;
- Total phenolic estimation.

This multi-platform approach is more powerful than relying upon a single marker compound.

Total Phenolic Content

One of the clearest quantitative differences was total phenolic content.

Reported values were

- ***Abies webbiana***: 6301.27 mg GAE/100 g
- ***Taxus baccata***: 977.45 mg GAE/100 g

Thus, under the experimental conditions of the study, *Abies webbiana* showed a substantially higher total phenolic content than *Taxus baccata*.

This result should not be interpreted as a universal species constant because phenolic concentration is influenced by extraction conditions, geography, season, plant maturity and analytical methodology. Nevertheless, it demonstrates the potential value of total phenolic estimation as a supportive—not standalone—authentication parameter.

UV–Visible Fingerprint

The methanolic extract of *Taxus baccata* showed absorbance values at:

- 227 nm
- 259 nm
- 275 nm
- 577 nm
- 663 nm.

The 577 nm and 663 nm absorptions were reported as unique to *Taxus baccata* in the study. *Abies webbiana* showed principal absorbance around:

- 229 nm
- 259 nm
- 276 nm,

without the distinctive 577 and 663 nm signals observed in *Taxus baccata*.

Therefore, UV–Visible spectroscopy can provide a rapid screening-level differentiation between the two powdered leaf drugs when appropriately standardized.

FT-IR Fingerprint

FT-IR analysis demonstrated overlapping and unique peaks.

Commonly observed regions included approximately:

- 2920/2922 cm^{-1}
- 1620/1621 cm^{-1}
- 1448/1444 cm^{-1}
- 1244 cm^{-1} .

However, diagnostic differences were observed

Taxus baccata — reported unique peaks

- ☐ 3403 cm^{-1}
- ☐ 1030 cm^{-1}
- ☐ 577 cm^{-1}

Abies webbiana — reported unique peaks

- ☐ 3371 cm^{-1}
- ☐ 1059 cm^{-1}
- ☐ 613 cm^{-1}

These findings illustrate the value of FT-IR as a whole-profile authentication tool.

HPTLC Fingerprinting

HPTLC demonstrated distinct band patterns for the two plants.

Reported unique R_f values for **Taxus baccata** included:

- ☐ 0.11
- ☐ 0.25
- ☐ 0.62
- ☐ 0.68
- ☐ 0.91
- ☐ 0.97

Reported unique Rf values for **Abies webbiana** included:

- 0.05
- 0.27
- 0.38
- 0.44
- 0.65
- 0.72
- 0.93

These Rf values are among the most useful numerical findings of the Vadivel et al. study for pharmacognostic discussion. However, they should be regarded as **method-specific fingerprints**, not universal Rf constants. Exact Rf values can shift with solvent system, plate characteristics, chamber saturation, temperature and laboratory conditions.

The HPTLC pattern nevertheless provides a practical route for authentication of raw materials and detection of substitution.

HPLC Fingerprinting

The study further identified species-specific retention profiles.

Taxus baccata

Unique reported peaks:

- 2.07 min
- 2.28 min
- 4.86 min
- 5.08 min
- 5.97 min
- 6.86 min

Abies webbiana

Unique reported peaks:

- 1.90 min
- 2.00 min
- 4.52 min

HPLC therefore provides another independent layer of authentication. The greatest value lies not in one retention time alone but in the **complete chromatographic profile**.

Comparative Chemical Fingerprint Summary**Table No. 1.**

Parameter	<i>Abies webbiana</i>	<i>Taxus baccata</i>
Total phenolics	6301.27 mg GAE/100 g	977.45 mg GAE/100 g
UV unique bands	No 577/663 nm bands reported	577 and 663 nm
FT-IR unique peaks	3371, 1059, 613 cm ⁻¹	3403, 1030, 577 cm ⁻¹
HPTLC unique R _f	0.05, 0.27, 0.38, 0.44, 0.65, 0.72, 0.93	0.11, 0.25, 0.62, 0.68, 0.91, 0.97
HPLC unique retention times	1.90, 2.00, 4.52 min	2.07, 2.28, 4.86, 5.08, 5.97, 6.86 min
Major chemical emphasis	phenolics, flavonoids, biflavonoids, terpenoids, sterols	taxanes, taxines, diterpenoids, flavonoids
Major safety concern	authentication and extract-specific safety	taxine-associated cardiotoxicity

Botanical Profile — *Rhododendron anthopogon***Botanical identity**

Botanical name: *Rhododendron anthopogon*

Family: Ericaceae

Habit: Aromatic evergreen Himalayan shrub

Common name: Sunpati / Sunpati leaf

Principal medicinal material: Leaves and flowers/aerial parts

The species is a high-altitude Himalayan shrub and is particularly associated with Nepal and adjoining Himalayan regions. It commonly grows at approximately 3,000–4,000 m and may occur at still higher elevations.

Ethnomedicinal Importance of *Rhododendron anthopogon*

Reported traditional uses include

- Common cold;
- Sore throat;

- Lung disorders;
- Digestive complaints;
- Appetite stimulation;
- Liver disorders;
- Pain;

Essential-Oil Chemistry of *Rhododendron anthopogon*^[10]

An investigation of aerial-part oil identified 17 compounds representing 97.8% of the oil. The oil was characterized predominantly by monoterpene hydrocarbons, especially:

- α -pinene — 37.4%
- β -pinene — 16.1%
- limonene — 13.3%
- δ -cadinene — 9.1%

A separate Nepalese leaf-oil investigation identified 70 compounds, with major components including

- α -pinene — 21.5%
- δ -cadinene — 13.8%
- β -pinene — 9.5%
- limonene — 5.9%
- δ -amorphene — 4.6%
- α -muurolene — 4.5%
- (E)-caryophyllene — 3.2%.

The difference between these profiles is itself important. It indicates that **R. anthopogon has substantial chemotypic or environmentally associated chemical variability.**

Pharmacological Evidence for *Rhododendron anthopogon*^[11]

Antimicrobial activity

Baral et al. reported antimicrobial activity of different extracts against clinical bacterial strains and phytopathogenic fungi. *Klebsiella pneumoniae* and *Salmonella typhimurium* were among the more strongly inhibited bacterial organisms, while *Fusarium* species showed substantial sensitivity to some extracts. The ethyl-acetate fraction and hot methanolic extract were among the more active preparations.

Essential-oil antimicrobial activity

The essential oil of *R. anthopogon* demonstrated activity against selected Gram-positive organisms and other test organisms in earlier studies. The literature also reports activity against *Mycobacterium tuberculosis* reference material under experimental conditions.

Such findings are pharmacologically interesting but cannot be directly converted into clinical treatment recommendations.

Anti-inflammatory activity

The aerial-part essential oil demonstrated weak topical anti-inflammatory activity in experimental models.

Comparative Interpretation of all the three drugs

The three plants can be conceptually compared as follows:

Table No. 2.

Feature	<i>Abies webbiana</i> [A. <i>spectabilis</i>]	<i>Taxus baccata</i>	<i>Rhododendron anthopogon</i>
Family	Pinaceae	Taxaceae	Ericaceae
Ayurvedic identity	Strong association with Tālisapatra	Historical/controversial Tālisapatra association	Not established as a direct equivalent of classical Tālisapatra
Major part	Leaves	Leaves and other parts	Leaves, flowers/aerial parts
Main traditional sphere	Respiratory + digestive	Respiratory + digestive in some Ayurvedic sources	Respiratory + digestive + aromatic ethnomedicine
Rasapañcaka evidence	Relatively well documented	Documented but identity is controversial	Classical Rasapañcaka insufficiently standardized
Main chemical emphasis	Terpenoids, flavonoids, phenolics, biflavonoids	Taxanes and taxines	Volatile monoterpenes, sesquiterpenes, phenolics
Direct fingerprint against another drug	Yes, against <i>T. baccata</i>	Yes, against A. <i>webbiana</i>	No equivalent three-way study identified
Major quality-control issue	Substitution/adulteration	Substitution + toxicity	Chemotypic/geographical variability
Major safety concern	Correct identity and dose	Taxine cardiotoxicity	Insufficient standardized safety data

DISCUSSION

The present comparative review demonstrates that *Abies webbiana* [*Abies spectabilis*], *Taxus baccata* and *Rhododendron anthopogon* occupy three distinct but overlapping spaces within Himalayan medicinal-plant research.

Abies webbiana has the strongest and most coherent association with the *Ayurvedic* drug *Tālisapatra*. Its *Rasapañcaka*—predominantly *Tikta/Kaṭu Rasa*, *Laghu-Tikṣṇa Guṇa*, *Uṣṇa Vīrya* and *Kaṭu Vipāka*—provides a rational *Ayurvedic* basis for its traditional use in *Kāsa*, *Śvāsa*, *Aruci* and *Agnimāndya*. Modern studies demonstrate antitussive, bronchodilator, antispasmodic and anti-inflammatory activities, providing pharmacological support for several traditional indications.

The modern botanical name presents no fundamental contradiction with the *Ayurvedic* literature if handled correctly. *Abies webbiana* is retained in this review because it is the name used extensively in classical and Indian medicinal literature, while current taxonomy recognizes it as a synonym of *Abies spectabilis*.

Taxus baccata has a legitimate historical association with *Tālisapatra* in Indian medicinal literature, but it cannot be regarded as chemically or toxicologically interchangeable with *Abies webbiana*. The direct fingerprinting study by Vadivel et al. provides strong evidence for differentiation using total phenolics, UV–Visible spectroscopy, FT-IR, NMR, HPTLC and HPLC. The presence of taxine compounds and their potentially severe cardiotoxic effects further increases the clinical importance of accurate authentication.

Rhododendron anthopogon represents an important Himalayan ethnomedicinal and aromatic plant with respiratory and digestive applications, significant essential-oil chemistry and antimicrobial/experimental pharmacological evidence. However, it should not be automatically equated with classical *Tālisapatra*. Its *Ayurvedic* identity and *Rasapañcaka* require further dedicated investigation.

The most important research gap is therefore not merely the absence of another phytochemical study but the **lack of a standardized three-species comparative authentication model**. While *Abies webbiana* and *Taxus baccata* have already been directly fingerprinted against each other, *Rhododendron anthopogon* has not yet been incorporated into an equivalent comparative chemical-fingerprint framework. A future study integrating

microscopy, HPTLC, HPLC/UPLC, GC-MS, LC-MS and DNA barcoding could establish a robust authentication system for these morphologically or therapeutically overlapping Himalayan medicinal plants.

CONCLUSION

Abies webbiana: Available experimental literature includes extract-specific toxicity observations, but comprehensive human safety data remain limited. Therefore, traditional therapeutic use should not be extrapolated to unrestricted high-dose administration.

Taxus baccata: This species requires particular caution because taxine alkaloids can produce serious cardiotoxicity. *Taxus* intoxication can cause hypotension, conduction disturbances, arrhythmia and potentially fatal cardiovascular collapse. Accordingly, *Taxus baccata* should **not** be substituted casually for *Abies webbiana* in routine Ayurvedic dispensing.

Rhododendron anthopogon: The available literature is insufficient to establish a comprehensive therapeutic safety profile for standardized internal preparations. Furthermore, *Rhododendron* species as a broader group contain biologically active diterpenoids in some taxa, making species-level authentication essential.

REFERENCE

1. Vadivel V, Anand P, Monajkumar S, Rajalakshmi P, Brindha P. Chemical Fingerprints of an Indian Traditional Herbal Drug Talisapatra (*Abies webbiana*) and Comparison with English yew (*Taxus baccata*). *International Journal of Pharmacognosy and Phytochemical Research*, 2018; 10(2): 84–91. DOI: 10.25258/phyto.v10i02.11937.
2. Baral B, Shrestha Vaidya G, Laxmi Maharjan B, Teixeira da Silva JA. Phytochemical and antimicrobial characterization of *Rhododendron anthopogon* from High Nepalese Himalaya. *Botanica Lithuanica*, 2014; 20(2): 142–152. DOI: 10.2478/botlit-2014-0009.
3. Central Council for Research in Ayurvedic Sciences. Documentation concerning Tālisapatra and *Abies webbiana*/*Taxus baccata*.
4. Royal Botanic Gardens, Kew. Plants of the World Online. *Abies spectabilis* (D.Don) Mirb.
5. Royal Botanic Gardens, Kew. Plants of the World Online. *Abies spectabilis* (D.Don) Mirb.
6. Royal Botanic Gardens, Kew. Plants of the World Online. *Taxus baccata* L.

7. Central Council for Research in Ayurvedic Sciences. Documentation concerning Tālisapatra and *Abies webbiana*/*Taxus baccata*.
8. Kew Medicinal Plant Names Services. Plant name details for *Taxus baccata*.
9. Vadivel V, Anand P, Monajkumar S, Rajalakshmi P, Brindha P. Chemical Fingerprints of an Indian Traditional Herbal Drug Talisapatra (*Abies webbiana*) and Comparison with English yew (*Taxus baccata*). *International Journal of Pharmacognosy and Phytochemical Research*, 2018; 10(2): 84–91. DOI: 10.25258/phyto.v10i02.11937.
10. Innocenti M et al. Chemical composition and biological properties of *Rhododendron anthopogon* essential oil.
11. Baral B, Shrestha Vaidya G, Laxmi Maharjan B, Teixeira da Silva JA. Phytochemical and antimicrobial characterization of *Rhododendron anthopogon* from High Nepalese Himalaya. *Botanica Lithuanica*, 2014; 20(2): 142–152. DOI: 10.2478/botlit-2014-0009.