



The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

NOTE

RECORD OF *OLDENLANDIA HYGROPHILA* BREMEK. (SPERMACOCEAE: RUBIACEAE), A LESSER KNOWN HERB FROM PALGHAT GAP OF WESTERN GHATS, KERALA, INDIA

Vadakkeveedu Jagadesh Aswani, Vasudevan Ambat Rekha, Pathiyil Arabhi, Manjakulam Khadhersha Jabeena, Kunnamkumarath Jisha & Maya Chandrashekar Nair

26 February 2020 | Vol. 12 | No. 3 | Pages: 15400–15404
DOI: 10.11609/jott.5673.12.3.15400-15404



For Focus, Scope, Aims, Policies, and Guidelines visit <https://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-0>
For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions#onlineSubmissions>
For Policies against Scientific Misconduct, visit <https://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-2>
For reprints, contact <ravi@threatenedtaxa.org>

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Member



Publisher & Host





Record of *Oldenlandia hygrophila* Bremek. (Spermacoaceae: Rubiaceae), a lesser known herb from Palghat Gap of Western Ghats, Kerala, India

Vadakkevedu Jagadesh Aswani¹ , Vasudevan Ambat Rekha² , Pathiyil Arabhi³ ,
Manjakulam Khadhersha Jabeena⁴ , Kunnamkumarath Jisha⁵  & Maya Chandrashekar Nair⁶ 

^{1,2,4,5,6} Post Graduate and Research Department of Botany, Govt. Victoria College (University of Calicut), Palakkad, Kerala 678001, India.

² Department of Botany, Mercy College (University of Calicut), Palakkad, Kerala 678006, India.

³ Department of Botany, Baselius College (Mahatma Gandhi University), Kottayam, Kerala 686001, India.

¹ aswaniv0@gmail.com (corresponding author), ² vasudevanrekha94@gmail.com, ³ arabhip1@gmail.com, ⁴ jabeena1993@gmail.com,

⁵ balujisha@gmail.com, ⁶ drmayadhoni@gmail.com

The genus *Oldenlandia* L. (1753) belonging to the tribe Spermacoaceae Chamisso & Schlechtendal ex de Candolle (1830) of the family Rubiaceae is well distributed in the tropical and subtropical regions of the world (Govaerts et al. 2013). In India, the occurrence of the genus *Oldenlandia* is often debated with variable number of citations as 27 species (Hooker 1880) in the Flora of British India and 45 species (Gamble & Fischer 1923) in the Madras Presidency region alone. Estimates reveal the documentation of 14 species and one variety from the state of Kerala (Sasidharan 2011; Jose et al. 2015; Soumya et al. 2017).

Materials and Methods

During the exploratory studies on the floristic diversity of granitic hillocks in Walayar forest range of southern Western Ghats, the authors came across this taxon growing on the rocky outcrops near the dam site

of Malampuzha in Palakkad District in July 2017. The specimens of the taxon were procured and herbarium was prepared using standard herbarium procedures. The plant specimens were characterised, measured and illustrated.

The specimen was identified to be *Oldenlandia hygrophila* Bremek. collected by Prof. Vasudevan Nair in 1972 cited from Malampuzha dam vicinity of Palakkad District (Bremekamp 1974) and confirmed the taxa from the type specimens deposited at Kew Herbarium (*O. hygrophila*: bar code no: K000031277). Regional herbaria (MH, KFRI and CALI) were consulted to check the presence of earlier collections of the taxon and found that N. Sasidharan had collected the taxa from Thrissur District in 1987 (Acc. No. KFRI 6945, collection No: N.S. 4635). Later, the taxa was reported from Muthanga region of Wayanad District in Kerala by Ratheesh Narayanan (RNMK 2228) in 2009. The taxon

Editor: K.P. Rajesh, Zamorin's Guruvayurappan College, Calicut, India.

Date of publication: 26 February 2020 (online & print)

Citation: Aswani, V.J., V.A. Rekha, P. Arabhi, M.K. Jabeena, K. Jisha & M.C. Nair (2020). Record of *Oldenlandia hygrophila* Bremek. (Spermacoaceae: Rubiaceae), a lesser known herb from Palghat Gap of Western Ghats, Kerala, India. *Journal of Threatened Taxa* 12(3): 15400–15404. <https://doi.org/10.11609/jott.5673.12.3.15400-15404>

Copyright: © Aswani et al. 2020. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

Funding: Kerala State Council for Science Technology and Environment (KSCSTE), Govt. of Kerala, The Council of Scientific and Industrial Research (CSIR).

Competing interests: The authors declare no competing interests.

Acknowledgements: First author and Jisha K. sincerely acknowledge financial support provided under the research fellowship programme and back-to-lab scheme by Kerala State Council for Science Technology and Environment (KSCSTE), Govt. of Kerala. Jabeena, M.K. acknowledges The Council of Scientific and Research Institute (CSIR) for the financial assistance. Authors like to extend sincere thanks to Director of Collegiate Education, Govt. of Kerala, and Principal, Govt. Victoria College, Palakkad for infrastructural support and encouragement. Authors are grateful to Prof. R. Vasudevan Nair, Rtd. Professor of Botany, Govt. Victoria College, Palakkad and Dr. K. M. Prabhukumar, CMPR, Kottakkal for their valuable comments in confirming the identity of the taxa. Rekha Vasudevan A., acknowledges University Grants Commission for granting FDP and authorities of Mercy College, Palakkad for necessary permissions in pursuing research. The authors sincerely acknowledge the support from Department of Forests, Govt. of Kerala for necessary permissions and assistance in exploring the forests of Palakkad District.



was not able to relocate from its type locality after its first collection by Prof. R. Vasudevan Nair in 1972. The acronyms for the herbaria follow the Index Herbariorum (Thiers 2018). The protologues of the allied taxa *Oldenlandia pumila* (L.f.) DC. and *Oldenlandia dineshii* Sojan & V. Suresh were also compared.

Oldenlandia hygrophila Bremek., Kew Bull. 29: 359. 1974; Narayanan, Fl. Stud. Wayanad Dist. 435. 2009.

Hedyotis hygrophila (Bremek.) Bennet, Journ. Econ. Tax. Bot. 4: 592. 1983; Sasidharan et al., Bot. Stud. Med. Pl. Kerala 18. 1996; Sasidh. & Sivar., Fl. Pl. Thrissur For. 221. 1996; Dutta & Deb, Taxonomic Revision Hedyotis 140. 2004 (Figure 1 and Images 1,2).

Annual, erect, branched or unbranched herbs, 25–130 mm tall. Entire plant with sparsely distributed setiform cuticular protuberances. Stem quadrangular, minutely winged when old. Stipules connate, interpetiolar, 1.5–2

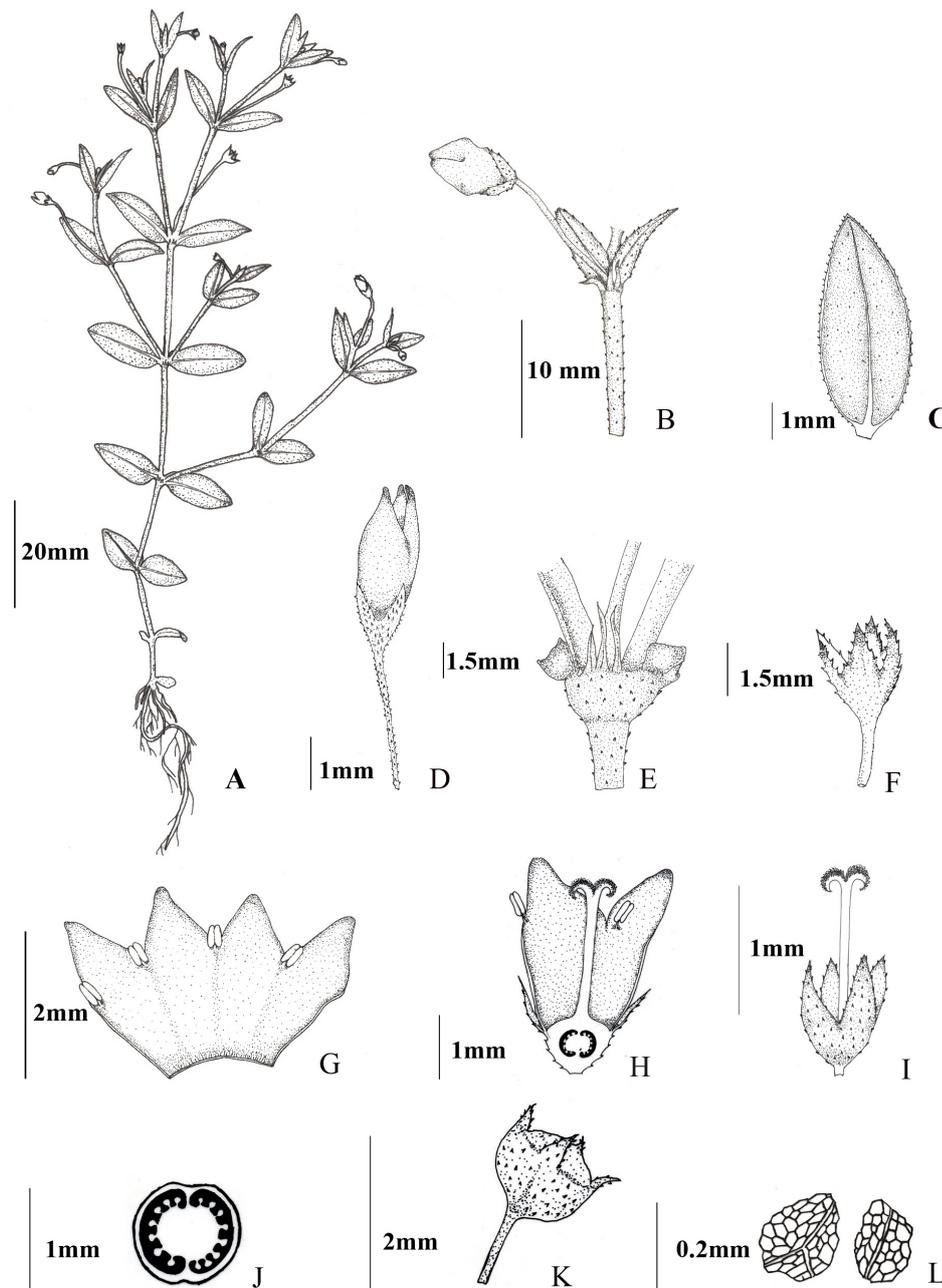


Figure 1. *Oldenlandia hygrophila* Bremek.: A—habit | B—portion of a flowering twig | C—single leaf | D—single flower | E—part of node showing stipules | F—calyx | G—corolla tube opened showing stamens | H—L.S. of flower | I—gynoecium | J—C.S. of ovary | K—capsule | L—seeds. © V.J. Aswani & A. Rekha Vaudevan.

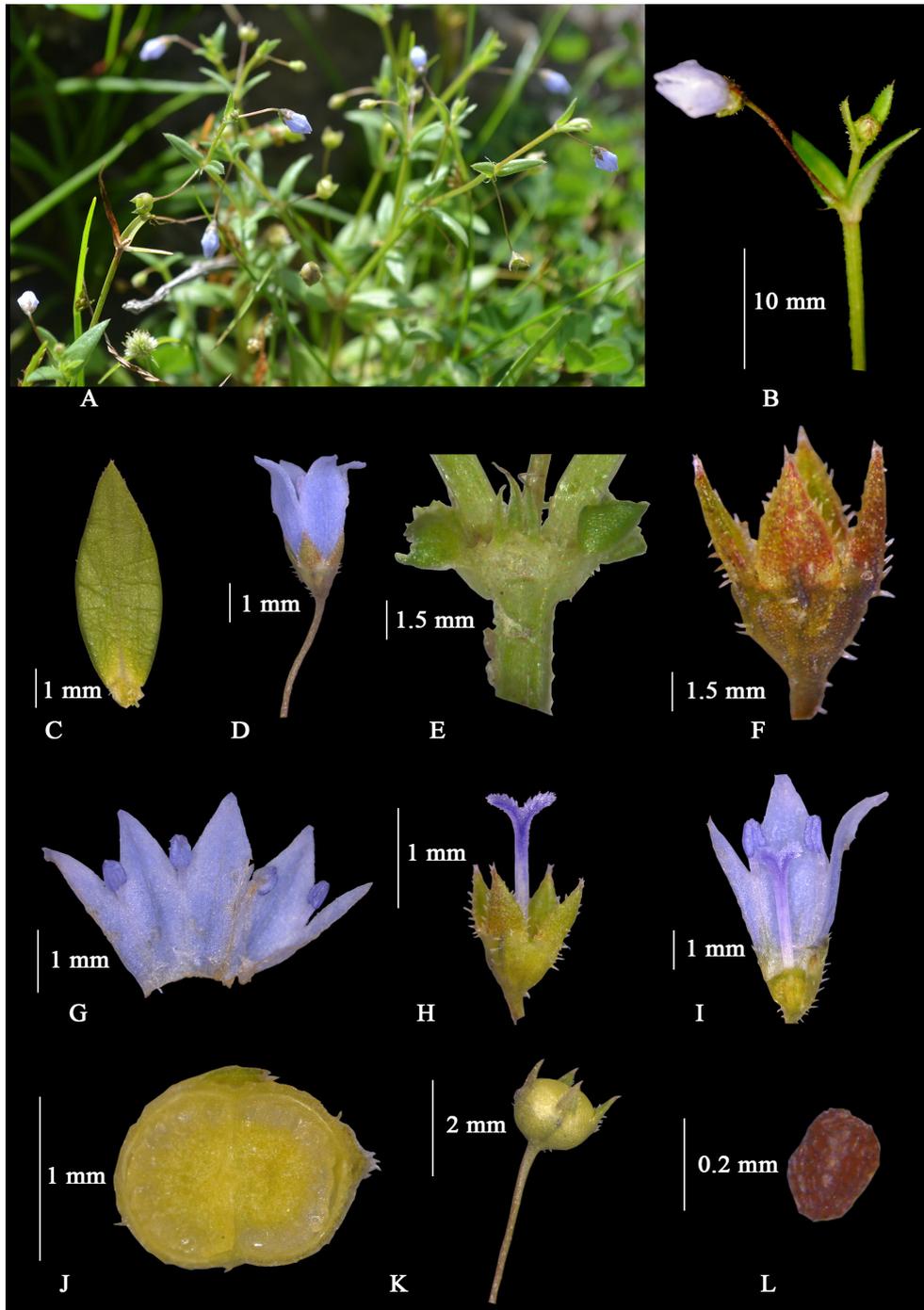


Image 1. *Oldenlandia hygrophila* Bremek.: A—habit | B—portion of a flowering twig | C—single leaf | D—single flower | E—part of node showing stipules | F—calyx | G—corolla tube opened showing stamens | H—gynoecium | I—L.S. of flower | J—C.S. of ovary | K—capsule | L—seeds. © V.J. Aswani & M.K. Jabeena.

mm long, 1–1.2 mm wide, with three bristles, middle one longer than the other two. Leaves sessile, 5–12 mm × 2–5 mm, linear lanceolate, 1-nerved, lamina base attenuate, margins recurved. Flowers axillary solitary, 3–3.5 mm long, corolla lobes not spreading when open. Pedicel slender, 6–10 mm, hypanthium ovoid and both

laden with setiform cuticular protuberances. Calyx lobes 4, 1.5–2 mm × 0.8–1 mm, reaching one fourth of the corolla tube, margins entire, apex acute. Corolla blue, tube 2–2.2 mm long, lobe 1mm long, oblong, apex acute, glabrous outside and with small hyaline hairs inside at the base. Stamens 4, inserted, adnate to sinus of corolla

Table 1. Taxonomic delineation of *Oldenlandia hygrophila* from *O. dineshii* and *O. pumila*

| Taxonomic Trait | <i>Oldenlandia hygrophila</i> | <i>O. dineshii</i> | <i>O. pumila</i> |
|---------------------------|---|---|--|
| Habit | Erect herb, branched and unbranched, 25–130 mm tall | Erect herb, dichotomously branched 50–200 mm tall | Branched prostrate or diffuse herbs |
| Stem | 4–angled, minutely winged with setiform cuticular protuberances | 4–angled, minutely winged, glabrous | Acutely angular, minutely dentate on ribs |
| Leaf | Linear-lanceolate, setiform cuticular protuberances present, 5–12 × 2–5 mm | Linear-lanceolate, sparsely scabrid, 10–20 × 5–8 mm | Elliptic-lanceolate, 7–18 × 1–6 mm |
| Leaf margin and leaf apex | Entire with regular setiform cuticular protuberances, recurved, apex acute, base attenuate | Apex acute, base attenuate | Scabrid above along margin and midrib below |
| Stipules | Bristles 3, 1.5–2 mm long, base broad up to 1–1.2 mm, middle one longer than other two | Bristles 2–3, 2–4 mm long, base broad up to 5mm. | Bristles 2–5, 2–3 mm long |
| Inflorescence | Axillary, solitary flowers alternating at nodes | Axillary, solitary or terminal 2–4 flowered cyme | Solitary or 2–flowered cyme |
| Flowers | 3–3.5 mm long, blue | 5–7 mm long, blue, campanulate | 3–4 mm long, white |
| Pedicele | 6–10 mm | 4–6 mm long | 10–15 mm long |
| Hypanthium | Ovoid with setiform cuticular protuberances | Ovoid, puberulous | Ovoid |
| Level of calyx lobes | One fourth of corolla tube | Much below the corolla tube | Below the level of corolla |
| Calyx | Margin entire with setiform cuticular protuberances, apex acute 1.5–2 × 0.8–1 mm long | Margin setulose, apex acute, 0.7–1 × 0.5–0.7 mm long | Margin dentate, lobes 4, rarely 5, ovate–lanceolate or triangular, apex acute, 0.5–0.6 mm long |
| Corolla | Lobes not spreading, tube 2–2.2 mm long, lobes 1mm long, oblong, acute at tip, glabrous outside and minute hyaline hairs at the base of corolla tube inside, apex slightly reflexed | Broadly campanulate, tube 2.5–4 mm long, lobes 2.5–3.5 mm long, minutely pubescent outside glabrous inside, apex reflexed | 2mm long, tube 1.2–1.3 mm long, pubescent at throat; lobes 0.5–0.8 × 0.5–0.6 mm, ovate, acute, incurved at apex. |
| Stamens | Inserted, filaments 0.25mm long, glabrous | Inserted, filaments 0.7–1 mm long, hairy | Included, filaments 0.2–0.3 mm long |
| Anther | 0.75mm | 1–1.2 mm | 3–4 mm long |
| Stigma | Bilobed, papillose | Bifid, hispid | Bilobed, papillose fleshy, tufted hairy |
| Capsule | Sub-globose 2×2 mm | Ovoid, 2.5–3 × 1.5–2.5 mm | Ellipsoid or oblong-ovoid |
| Seed | Many, angular, with minor grooves 0.2–0.3 × 0.2–0.3 mm | Many, angular 0.3–0.5 × 0.3–0.5 mm | Many, 0.7 × 0.1 mm, angular |

lobes, introrse. Filaments 0.25mm long, glabrous. Anthers linear 0.75mm. Style 1.5mm long, glabrous. Stigma bilobed, 1mm, densely papillose. Ovary 1×1mm, 2–celled, many ovuled in axile placentation. Capsule sub-globose, 2×2 mm, loculicidally dehiscent from apex, with slightly raised crown above. Seeds numerous, trigonal, reticulate 0.3×0.2 mm.

Specimens examined: 361 (GVCH), 24 vii 2017, INDIA: Kerala: Palakkad District, Walayar range, Akathethara section, Koomachimala, 10.829°N, 76.676°E, 14m, coll. Aswani & Maya; 177855 (MH) 24.vii.2017, INDIA: Kerala: Palakkad District, Walayar range, Akathethara section, Koomachimala, 10.829°N, 76.676°E, 14m, coll. Aswani & Maya; 7004 (CALI) 24.vii.2017, INDIA: Kerala: Palakkad District, Walayar range, Akathethara section, Koomachimala, 10.829°N, 76.676°E, 14m, coll. Aswani & Maya.; 399 (GVCH) 12.viii.2017, INDIA: Kerala: Palakkad District, Walayar range, Akathethara section, Malampuzha (Koomachimala), 10.834°N, 76.680°E, 48m, coll. Aswani & Arabhi; 543 (GVCH) 15.ix.2017, INDIA:

Kerala: Palakkad District, Walayar range, Akathethara section, Dhoni Hills, Neelippara, 10.8647°N, 76.6282°E, 282m, coll. Aswani & Rekha; 4173 (GVCH) 08.vii.2019, INDIA: Kerala: Palakkad District, Walayar range, Akathethara section, Malampuzha (Koomachimala), 10.829°N, 76.676°E, 15m, coll. Aswani & Jabeena (GVCH– Government Victoria College Herbarium).

Phenology: Flowering: June–August; Fruiting: July–September.

Distribution: India, Kerala: Palakkad, Wayanad, Thrissur districts.

Additional specimens examined: K000031277 (K), s.n. 1972, India, Kerala, Malampuzha near Palghat hardly 100m below, coll. R. Vasudevan Nair; 6945(KFRI), Collection no: N.S. 4635, 22.ix.1987, Peechi, Thrissur, coll. N. Sasidharan.

Ecology: This plant grows at an elevation of 14–252m in hydro geomorphic exposed rock surfaces along with *Drosera indica* L., *Utricularia lazulina* P.Taylor, *U. graminifolia* Vahl, *Indigofera uniflora* Buch. - Ham.

ex Roxb., *Desmodium triflorum* (L.) DC. and *Polygala persicariifolia* DC.

Threat status: This taxon could not be recollected from its earlier reported locations of forest areas in Thrissur and Wayanad districts of Kerala except from its type locality near Malampuzha Village very near to Malampuzha Dam region of Palakkad District, Kerala after its first collection in 1972. Exhaustive surveys across Palghat gap region covering the nearby forest ranges also could not locate the taxon. This gives us evidence of its narrow distributional range and that it can be considered endemic to southern Western Ghats (restricted to Kerala). Till date, the taxon's existence was doubted due to lack of collection or further reports. This may be the reason that the taxon has not yet been evaluated as per the IUCN Red List 2019. Since the population size is very small, distributed in a narrow stretch of hydrogeomorphic habitats of less than 10km², the taxon can be assigned the status of Critically Endangered (CR) as per IUCN version 2019-3 (IUCN 2019).

Taxonomic delineation of *Oldenlandia hygrophila* from *O. dineshii* and *O. pumila*

Oldenlandia hygrophila is similar to *O. dineshii* in quadrangular stem and possession of blue flowers, but differs in the presence of setiform cuticular protuberance all over the plant, solitary axillary flowers smaller in size (2.5–3.0 x 1.5–2.0 mm), corolla lobes not spreading when open, sepals reaching one fourth the length of corolla tube, corolla tube glabrous outside, but with hyaline hairs at the base inside and glabrous staminal filaments. *O. hygrophila* differs from *O. pumila* in having erect nature of plant, linear-lanceolate leaves, solitary axillary blue flowers, shorter pedicels, calyx lobes reaching one-fourth the level of corolla lobes, corolla with minute hyaline hairs at the base of corolla tube inside and with sub-globose capsule. Comparison of taxonomic characters of *O. hygrophila* with *O. dineshii* and *O. pumila* is given in Table 1.

References

Bremekamp, C.E.B. (1974). A new species of *Oldenlandia* (Rubiaceae) from India with remarks on its inflorescence morphology. *Kew Bulletin* 29: 359–361.

Chamisso, L.A. & D.F.L. Schlechtendal, A.P. ex De Candolle (1830). Tribus Spermaceae. *Prodromus Systematis Naturalis Regni Vegetabilis* 4: 343, 538.

Gamble, J.S. & C.E.C. Fischer (1923). *Flora of the Presidency of Madras*. Reprint ed. Vol. II, 2011. Bishen Singh Mahendra Pal Singh, Dehradun. 767pp.

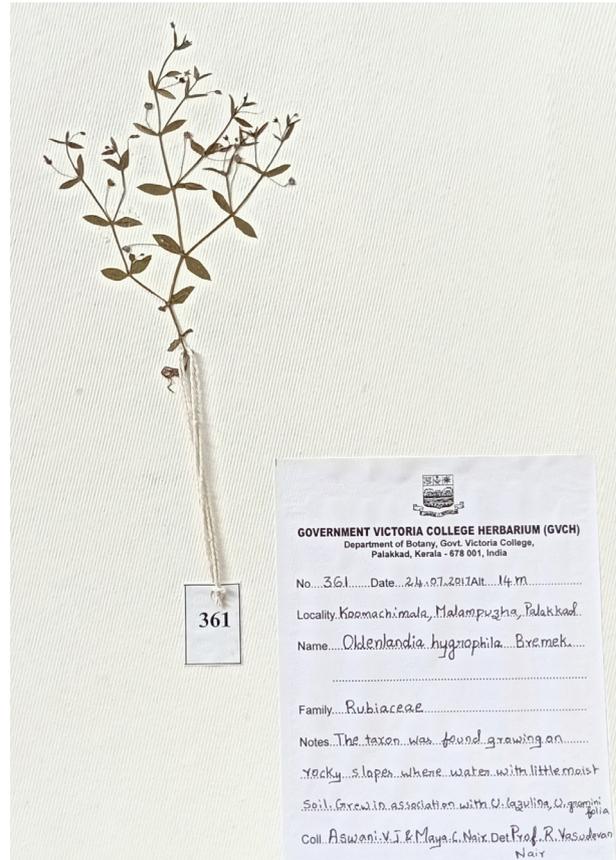


Image 2. Herbarium of *Oldenlandia hygrophila* Bremek.

Govaerts, R., L. Andersson, E. Robbrecht, D. Bridson, A. Davis, I. Schanzer & B. Sonke (2013). *World checklist of Rubiaceae*. Royal Botanic Gardens, Kew. The Board of Trustees of the Royal Botanic Gardens. <https://wmsp.science.kew.org/>. Accessed on 28 December 2019.

Hooker, J.D. (1880). Order LXXV. Rubiaceae, pp. 17–210. In: J.D. Hooker (ed.), *The Flora of British India* 3. Reeve, London, 712pp.

Jose, S., M.C. Nair, K.M. Prabhukumar, V.V. Asha, R.P. Kumar, P.V. Madhusoodanan & V. Suresh (2015). *Oldenlandia dineshii* (Rubiaceae: Spermaceae), a new species from the Palakkad Gap region of Western Ghats, India. *Kew Bulletin*. 70: 13: 1–5. <https://doi.org/10.1007/s12225-015-9564-y>.

Linnaeus, C. (1753). *Species plantarum* 1. Laurentius Salvius, Stockholm, 1200pp.

Sasidharan, N. (2011). *Flowering plants of Kerala*: CD ROM ver 2.0. Kerala Forest Research Institute, Peechi.

Soumya, M., J. Sojan, V. Suresh & M.C. Nair (2017). *Oldenlandia vasudevani* (Spermaceae, Rubiaceae) a new species from the southern Western Ghats, India. *Phytotaxa* 305 (1): 041–046. <https://doi.org/10.11646/phytotaxa.305.1.6>

Thiers, B. (2018). Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. <http://sweetgum.nybg.org/science/ih/>





The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

February 2020 | Vol. 12 | No. 3 | Pages: 15279–15406

Date of Publication: 26 February 2020 (Online & Print)

DOI: 10.11609/jott.2020.12.3.15279-15406

www.threatenedtaxa.org

Review

Ramifications of reproductive diseases on the recovery of the Sumatran Rhinoceros *Dicerorhinus sumatrensis* (Mammalia: Perissodactyla: Rhinocerotidae)

– Nan E. Schaffer, Muhammad Agil & Zainal Z. Zainuddin, Pp. 15279–15288

Communications

Diet ecology of tigers and leopards in Chhattisgarh, central India

– Krishnendu Basak, Moiz Ahmed, M. Suraj, B.V. Reddy, O.P. Yadav & Krishnendu Mondal, Pp. 15289–15300

Building walls around open wells prevent Asiatic Lion *Panthera leo persica* (Mammalia: Carnivora: Felidae) mortality in the Gir Lion Landscape, Gujarat, India

– Tithi Kagathara & Erach Bharucha, Pp. 15301–15310

Taxonomic and ecological notes on some poorly known bats (Mammalia: Chiroptera) from Meghalaya, India

– Uttam Saikia, AdoraThabab & Manuel Ruedi, Pp. 15311–15325

Angiosperm diversity in Bhadrak region of Odisha, India

– Taranisen Panda, Bikram Kumar Pradhan, Rabindra Kumar Mishra, Srusti Dhar Rout & Raj Ballav Mohanty, Pp. 15326–15354

Short Communications

Sighting of *Petaurista petaurista* (Pallas, 1766) (Mammalia: Rodentia: Sciuridae) on limestone hills in Merapoh, Malaysia

– Priscillia Miard, Mohd Nur Arifuddin, Izereen Mukri, Siti Syuhada Sapno, Hafiz Yazid, Nadine Ruppert & Jayaraj Vijaya Kumaran, Pp. 15355–15358

Molecular detection of *Murshidia linstowi* in a free-ranging dead elephant calf

– Sourabh Ranjan Hota, Sonali Sahoo, Manojita Dash, Avisek Pahari, Bijayendranath Mohanty & Niranjana Sahoo, Pp. 15359–15363

Parasite commonality at Swamp Deer (Mammalia: Artiodactyla: Cervidae: *Rucervus duvaucelii duvaucelii*) and livestock interface

– Animesh Talukdar, Bivash Pandav & Parag Nigam, Pp. 15364–15369

Prevalence and seasonal variation of gastrointestinal parasites among captive Northern Pig-tailed Macaque *Macaca leonina* (Mammalia: Primates: Cercopithecidae)

– Phoebe Lalremruati & G.S. Solanki, Pp. 15370–15374

New record of *Tulostoma squamosum* (Agaricales: Basidiomycota) from India based on morphological features and phylogenetic analysis

– Arun Kumar Dutta, Soumitra Paloi & Krishnendu Acharya, Pp. 15375–15381

Notes

An account of a first record of the Common Goldeneye

***Bucephala clangula* Linnaeus, 1758 (Aves: Anseriformes: Anatidae) in Bhutan**

– Sangay Nidup, Gyeltshen & Tshering Tobgay, Pp. 15382–15384

First record of the hawkmoth *Theretra lyctetus* (Cramer, 1775) (Sphingidae: Macroglossinae) from Bhutan

– Sangay Nidup & Jatishwor Singh Irungbam, Pp. 15385–15386

Occurrence and association of the Scarce Lilacfork

***Lethe dura gammiei* (Moore, [1892]) (Lepidoptera: Nymphalidae: Satyrinae) with Woolly-leaved Oak *Quercus lanata* Smith, 1819 (Fabaceae) forest in the Kumaon region of the Indian Himalaya**

– Arun P. Singh & Tribhuwan Singh, Pp. 15387–15390

Additions to the Odonata (Insecta) fauna of Asansol-Durgapur Industrial Area, West Bengal, India

– Amar Kumar Nayak, Pp. 15391–15394

***Gynochthodes cochinchinensis* (DC.) Razafim. & B. Bremer (Morindeae: Rubioideae: Rubiaceae): an addition to the woody climbers of India**

– Pradeep Kumar Kamila, Prabhat Kumar Das, Madhusmita Mallia, Chinnamadasamy Kalidass, Jagayandatt Pati & Pratap Chandra Panda, Pp. 15395–15399

Record of *Oldenlandia hygrophila Bremek.* (Spermacoceae: Rubiaceae), a lesser known herb from Palghat Gap of Western Ghats, Kerala, India

– Vadakkevedu Jagadesh Aswani, Vasudevan Ambat Rekha, Pathiyil Arabhi, Manjakulam Khadhersha Jabeena, Kunnamkumarath Jisha & Maya Chandrashekar Nair, Pp. 15400–15404

Book Review

The State of Wildlife and Protected Areas in Maharashtra: News and Information from the Protected Area Update 1996-2015

– Reviewed by L.A.K. Singh, Pp. 15405–15406

Member



Publisher & Host

