ON THE CIRCUMSCRIPTION OF THE MOSS RHYNCHOSTEGIUM HOOKERI (BRACHYTHECIACEAE)

A. E. D. Daniels* and K. C. Kariyappa

Bryology Laboratory, Botany Department and Research Centre
Scott Christian College (Autonomous), Nagercoil – 629 003, Tamil Nadu, India
*E-mail: dulipdaniels@yahoo.co.uk

(Received 14 June, 2013; Accepted 25 July, 2013)

Rhynchostegium hookeri and R. calderii are found conspecific and hence the latter is reduced to a synonym under the former. The orthographic error made by Vohra (1980) while latinising the species name “calderii” is rectified here to “calderi”. The description of R. hookeri is amended to include all the variations observed, and sporophytic characters are added here for the first time. An illustration including all variations and sporophytic characters is provided.

Key words: conspecific, Brachytheciaceae, Rhynchostegium calderii, R. hookeri

INTRODUCTION

Sauerbeck (in Jaeger 1878) described Rhynchostegium hookeri as a new species and typified the name on a material collected by J. D. Hooker in Sikkim (Eastern Himalaya). Vohra (1980) described Rhynchostegium calderii as a new species and typified the name on a material collected by C. C. Calder in Darjeeling (Eastern Himalaya). Both species were described based on sterile material and hence the descriptions lack sporophytic characters.

In a course of surveys conducted in Agasthyamalai Biosphere Reserve in the southern Western Ghats for a bryoflora, fertile material of R. hookeri was collected. While making a comparative study with its closely allied species, it was found that R. calderii falls well within the circumscription of R. hookeri. Vohra (1983) separated the former from the latter using the lone character viz., leaf laminar cells 150 μm or more in R. calderii, whereas they are less than 120 μm in R. hookeri. However, from the descriptions given by Vohra (1983), two
more characters can be taken into account viz., leaf margin sharply toothed for 2/3 from apex and costa half as long as leaf or shorter in *R. calderii*, whereas in *R. hookeri* the leaf margin is sharply toothed from apex to base and the costa almost reaching the leaf apex.

Interestingly, in the present collection, all the above mentioned characters, such as variation in the length of costa, the degree of distinctiveness and length covered by marginal teeth overlap in the same plant. Moreover, plants in Gammie’s collection of *R. hookeri* also show variations in the length of costa and the length covered by marginal teeth (Figs 26–28, 36, 37). In addition the branching pattern is the same in *R. hookeri* and *R. calderii* (see Fig. 163(a) in Vohra, 1983; Figs 1, 23). Moreover, in Vohra (1983) the basal cells of both the species appear almost the same particularly the marginal ones (Figs 163(d); 167(d)). The dimensions of leaf lamina cells as described by Vohra (1980, 1983) contradict the illustration. The description says “cells linear-rhomboidal, 8 × 165–190 μm, thin-walled, uniform to base”. But in the illustration the basal cells appear elongate-rectangular to rhomboid and not linear and those towards the costa are much shorter. The colour of the costa is given as yellowish in *R. calderii*, which does not differ in *R. hookeri* either. Hence, it is concluded here that both *R. hookeri* and *R. calderii* are conspecific since the characters used by Vohra (1980) to describe *R. calderii* are untenable. Therefore, *R. calderii* is reduced to a synonym under *R. hookeri* and the description of *R. hookeri* is amended here. An illustration with sporophytic characters is appended here-with.

Vohra (1980) while coining the specific epithet based on the name Calder (Director of the Botanical Survey of India from 1923 to 1939 (Lakshminarasimhan, pers. comm.)) who collected the specimen, wrongly spelt the latinised form as “calderii” instead of “calderi”. In Article 60.1 of ICN (McNeill et al. 2012) there are provisions to rectify orthographic errors such as this and Recommendation 60C provides the correct usages (also see Henry and Chandrabose 1980: 54). Hence, this is rectified in the citation given below.

**Rhynchostegium hookeri** Sauerb.

(Figs 1–37)


ON THE CIRCUMSCRIPTION OF THE MOSS *RHYNCHOSTEGIUM HOOKERI*

Figs 1–22. *Rhynchostegium hookeri* Sauerb. – 1 = plant; 2 = portion of plant; 3 = stem (cross section); 4–8 = leaves; 9 = leaf apex (twisted); 10–12 = leaf apical cells; 13 = leaf median cells; 14 = leaf basal cells; 15 = marginal cells at midleaf; 16–18 = leaf marginal cells at base; 19 = perichaetal leaf; 20 = capsule; 21 = peristome teeth; 22 = spores (drawn from K. C. Kariyappa 190)

Figs 23–37. *Rhynchostegium hookeri* Sauerb. – 23 = plant; 24 = portion of plant; 25 = stem (cross section); 26–28 = leaves; 29 = leaf apex (twisted); 30–31 = leaf apical cells; 32 = leaf median cells; 33 = leaf basal cells; 34–35 = marginal cells at midleaf; 36–37 = leaf marginal cells at base (drawn from Gammie 47)
Plants 3–5 cm long, forming mats, prostrate, yellowish green. Stems sparsely radiculose, irregularly pinnately branched, 0.8–1.4 × 0.64–0.96 mm in cross section, ovate, without a central strand; cortex 1-layered or 2-layered; cells 2–6 × 2–4 μm, thick-walled, with a pale reddish tinge; medullary ones 8–16 × 6–12 μm, thin-walled; branches 1–2 cm long, flexuose, attenuate, laxly foliate, erect or ascending. Leaves wide-spreading, 1.3–2 × 0.56–0.7 mm, ovate-lanceolate, toothed throughout or at margin above, short-acuminate and sometimes twisted at apex; cells linear-rhombooidal, thin-walled; apical ones 30–60 × 6–8 μm; median ones 150–180 × 10–12 μm; basal ones 40–80 × 10–12 μm; alar cells not differentiated; costa 1/2 as long as leaf to ending a little below apex, distinct to faint, sometimes with a short second one, yellowish to yellowish brown. Sporophytes on stem or branches. Perichaetal leaves ca 1.46 × 0.32 mm, ovate-lanceolate, cuspidate at apex. Setae ca 1.5 cm high, terete, pale yellow to reddish brown. Capsules inclined, ca 2 × 0.64 mm, cylindrical, yellowish brown. Peristome teeth 2-rowed; exostome ca 0.4 × 0.04 mm, linear-lanceolate, papillose at apex, yellowish at base; endostome ca 0.3 × 0.04 mm, linear-lanceolate, irregularly segmented, papillose at apex, pale yellow. Spores 10–12 μm, globose, fine-papillose, pale brown.

Habitat: ripicolous in evergreen forests, ca 620 m.

Distribution: Sri Lanka and India: Himalaya and Western Ghats of Kerala and Tamil Nadu (Tirunelveli), rare.

Specimens examined: Tamil Nadu, Tirunelveli Dist., Western Ghats, Mundanthurai, Incikuzhi, ca 620 m, K. C. Kariyappa (190, 192), 3.2.2010, (SCCN). – Eastern Himalaya, Darjeeling, Sureil, ca 6,000 ft., Gammie (47), Dec. 1896, (74/10)5-2, (CAL!). – Darjeeling, without precise locality, date and collector, (74/10)5-1, (CAL!).

Note: The type specimen of *R. calderi* is not at CAL and could not be traced. Hence we could not examine the specimen. Most of J. N. Vohra's type specimens are not at CAL. The specimen KPR 99853/a (CAL) cited by C. N. Manju et al. (2008) is also missing (Manju, pers. comm.).

*Acknowledgements* – We thank the Tamil Nadu State Forest Department for permission to explore the study area and help in the field, Dr. P. Venu (CAL), for permission to consult the herbarium and library, and for the specimens on loan, and the Principal, Scott Christian College, for facilities. The financial assistance from the Ministry of Environment and Forests, Govt. of India, New Delhi, under the All India Coordinated Project on Taxonomy (AICOPTAX) is gratefully acknowledged. KCK thanks the MoEF, for a fellowship. AEDD is thankful to Dr. G. Winter (Senckenberg Natural History Museum, Germany), for the prologue of *Rhynchogetium hookeri* and for translating German passages into English in other pertinent literature, Dr. P. Lakshminarasimhan (CAL), for information on S. S. Calder's
tenure as the Director of the BSI and Dr C. N. Manju (Zamorin’s Guruvayurappan College, Calicut), for informing him that the *R. hookeri* specimen KPR 99853/a (CALI) is missing.

REFERENCES


