A new species of *Putterlickia* (Celastraceae) from southern Natal and Pondoland

A.E. van Wyk* and S.C. Mostert

H.G.W.J. Schweickerdt Herbarium, Department of Botany, University of Pretoria, Pretoria, 0002 Republic of South Africa

S.C. Mostert — Present address: Kruger National Park, Private Bag X402, Skukuza, 1350 Republic of South Africa

Accepted 16 February 1987

*Putterlickia retrospinosa* Van Wyk & Mostert, a woody forest climber endemic to the sandstone region of southern Natal/Pondoland is described. It is allied to *P. verrucosa* (E. Mey. ex Sond.) Szyszyl. from which it differs in its exclusively climbing habit, reflexed spines, much larger leaves which are broadly elliptic to broadly obovate with entire margins, and relatively large inflorescences. Hitherto the genus *Putterlickia* Endl. has been characterized by up to six ovules per locule. The new species usually has 8 – 10 ovules per locule. Up to 8( – 10) ovules were also occasionally recorded in the other species. Although the geographical distribution of *P. retrospinosa* falls within the range of *P. verrucosa*, the two species are mutually exclusive with the latter not transgressing onto the sandstone. No evidence of clinal variation or introgression between these two species was found.

*Putterlickia retrospinosa* Van Wyk & Mostert, ‘n houtagtige woud-klimplant endemies tot die sandsteengebied van Suid-Natal/Pondoland word beskryf. Die spesies is naverwant aan *P. verrucosa* (E. Mey. ex Sond.) Szyszyl. waarvan dit verskil ten opsigte van die uitsluitlik klimmende groeiform, teruggebuigde stingeldorings, aansienlik groter loofblare wat breed-ellipties tot breed-omgekeerdeellendron en gaafandig is en relatief groot bloeiyweses. Tot dusver is die genus *Putterlickia* Endl. deur die aanwezigheid van tot ses saadknoppe per vrughok gekenmerk. Die nuwe spesie het gewoonlik 8 – 10 saadkappe per vrughok. Tot 8( – 10) saadkappe is in enkele gevalle ook by die ander spesies gevind. Alhoewel die geografiese verspreiding van *P. retrospinosa* binne die verspreidingsgebied van *P. verrucosa* geleë is, is dit twee spesies onderling-uitsluitend met laasgenoemde wat nie die sandsteengebied binnedring nie. Geen aanduiding van ‘n klien of introgressie tussen die twee spesies is gevind nie.

Keywords: Celastraceae, endemism, *Maytenus*, *Putterlickia*, taxonomy

*To whom correspondence should be addressed*

**Introduction**

The genus *Putterlickia* Endl. is confined to southern Africa and comprises a variable assemblage of closely related forms. It is distinguished from *Maytenus* Molina essentially by having (4 – 6) – 8( – 10) ovules compared to two per locule, with the placentation axile and axile-basal respectively. Despite the apparent lack of marked differentiating characters, two species of doubtful distinction, namely *P. pyracantha* (L.) Endl. and *P. verrucosa* (E. Mey. ex Sond.) Szyszyl., have been recognized in recent years. Current work on the group has now confirmed the specific status of at least one clearly circumscribed infrageneric taxon. In the present paper this long recognized but hitherto unnamed species is formally described.

**Description**

*Putterlickia retrospinosa* *Van Wyk & Mostert*, sp. nov., *P. verrucosae* affinis, a qua impressim differt habitu semper scandenti, spinis retrospectantibus, foliis multo grandioribus et late ellipticis ad late obovatus atque exhibentibus margines integros et inflorescentiis grandioribus.

**TYPUS.** — Natal: Umntamvuna Nature Reserve, Beacon Hill, 10 December 1981, *Van Wyk 5261* (PRU, holotypus; PRE, isotypus).

*Putterlickia* sp. no. 1 in Coates Palgrave 504 (1977).

Evergreen woody climber with long and short shoots, glabrous and armed with spinescent branchlets. *Long shoots* slender, terete, climbing or trailing, up to c. 10 m long. *Short shoots* axillary, 5 – 12 mm long, densely covered with dried stipules. *Spines axillary*, ± straight and conspicuously reflexed (vertical angle of divergence from axis usually 130 – 160°), (15) – 40( – 80( – 100) mm long, well developed on older stems and frequently absent from young 'canopy' branchlets, leafless or with a pair of subopposite reduced leaves towards the tip. *Bark* on long shoots and spines reddish-brown, becoming dark grey to blackish, striated and prominently dotted with numerous white lenticels with age. *Leaves* alternate on long and ± rosulate on short shoots; lamina usually broadly elliptic to broadly obovate, rarely elliptic or ovate (the latter state only observed in leaves subtending spines), (25) – 80( – 120 (– 150) mm long, (15) – 40( – 60( – 70) mm wide, base rounded or shortly attenuate, apex rounded or retuse, margin entire, thick and coriaceous, dark green and shiny above, pale green and dull below; venation brochidodromous; midrib narrowly keeled or slightly raised above, raised below where it terminates apically or subapically in a minute mucro; principal lateral veins slightly raised or obscure above, slightly raised below; petiole 8 – 15 mm long; stipules linear, c. 2 mm long, marcescent, densely arranged and persistent on short shoots. *Inflorescences* consisting of many-flowered subdichasial cymes, terminal or simple in the axils of foliage leaves, or in clusters of 1 – 6 on short shoots, usually 80 – 140 mm long; peduncle 30 – 50 mm long; bracts minute, deltoid, persistent. *Flowers* bisexual, 4 – 5-merous; pedicels c. 3 – 5 mm long, articulated at or very near the base, gradually widening into the receptacle. *Sepals* green, ± equal, fleshy, cucullate, subrotund with rounded apices, c. 1 mm long, 1.5 mm wide, margin short and irregularly ciliate. *Petals* white, oblong with obtuse apices, c. 3.5 mm long, 2 mm wide, erect or ± spreading, margin minutely erose. *Stamens* ± erect; filaments c. 1.5 mm long, suberete, situated opposite shallow sinuses in (and inserted below) the margin of the disc; anthers c. 0.5 mm long, basified, slightly versatile, ± latrode, dehiscing by longitudinal slits. *Disc* slightly concave with margin shallowly lobed. Ovary c. 1/3 immersed in and adnate to the disc. 3 – 4-locular with (6) – 8( – 10 ovules per locule, placenta­ tion axile with ovules ventral hypotropous and arranged in two rows; style absent or very short (c. 0.25 mm); stigma with 3 – 4 spreading and ± linear lobes. *Fruit* capsular with a woody pericarp, pendulous, whitish-green, often tinged with purple or rarely red, dehiscing loculicidally, usually 3 – 4-locular, obovoid, lobed between the locules, apex slightly concave, c. 30 mm long, 20 mm in diam. *Seeds* usually 1 – 3
Figure 1 *Putterlickia retrospinosa*. 1. flowering branchlet, ×1; 2. flower, ×5; 3. fruit, ×1; 4. seed enveloped by an aril, ×3.5; 5. seed with aril removed, ×3.5; 6. embryo, ×3.5 (1 & 2 from *Van Wyk* 5281; 3–6 from *Van Wyk* 3336).
per locule, ellipsoid, dark brown, postchalazal vascular branches not observed, c. 8 mm long, 5.5 mm wide; aril orange with a glabrous but wrinkled surface, completely enveloping the seed; endosperm abundantly present, fleshy, embryo erect and fleshy (Figure 1).

Flowering mainly October–December. Fruits usually ripening between January and April.

**Distribution**

*Putterlickia retrospinosa* is a forest climber endemic to the southern Natal/Pondoland sandstone (Natal Group) region (Figure 2). The species usually grows in rocky places and is found mainly along forest margins (particularly those in exposed situations) and in short shrub forest. It is fairly common throughout most of the sandstone region and therefore is a useful indicator species for the flora of this well-known centre of endemism.

*Putterlickia verrucosa* has been recorded from the areas surrounding the southern Natal/Pondoland sandstone ‘island’. The distribution range of *P. retrospinosa* therefore falls within the range of *P. verrucosa* but, curiously, the two species are mutually exclusive without any evidence of clinal variation or introgression.

![Figure 2 The known distribution of Putterlickia retrospinosa.](image)

**Discussion**

*Putterlickia retrospinosa* is a distinctive and easily recognized species. It seems to be most closely allied to *P. verrucosa* which also has abundant prominent whitish lenticels on the stems. Diagnostic characters include its exclusively climbing habit, reflexed spines, entire margined and broadly elliptic to broadly obovate leaves which are the largest in the genus, and relatively large inflorescences. *P. verrucosa* and *P. pyracantha* are usually shrubs or small trees, although the former species may occasionally assume a somewhat scandent habit, particularly in northern Natal. In both these species the spines are slightly apically directed or arranged more or less perpendicular to the stem axis and the relatively small leaves are usually obovate to oblanceolate-spathulate. In addition, the blade margin is often spinulose-denticulate, particularly in *P. verrucosa*.

The specific epithet of the new species refers to the distinctive backward-pointing spinescent branches which are particularly well developed on older stems. These spines are clearly an adaptation to the climbing habit of the species. Plants are very sparsely branched and once out in the light, sprawl across shrubs and trees in a straggling manner. Ultimate branchlets occasionally display much smaller and even, more or less perpendicular spines, or may be spineless. In the absence of support, the stems are usually procumbent. All plants observed in the field were clearly not shrubby or tree-like as described by Coates Palgrave (1977) under *Putterlickia* sp. no. 1. At least three other forest scramblers/climbers, often associated with *P. retrospinosa* also grow upward with the aid of reflexed and often spineless branchlets. These are *Cassine tetragona* (L.f.) Loes. (Celastraceae), *Diospyros simii* (Kuntze) De Wint. (Ebenaceae) and an undescribed species of *Rhus* (Anacardiaceae).

It has been widely claimed that *Putterlickia* is characterized by up to six (more rarely reduced to three or perhaps two) ovules per locule (Davison 1927; Loesener 1942; Robson 1965, 1966). The present study has shown that *P. retrospinosa* contains (6–8–10) ovules per locule. Up to eight (rarely ten) ovules per locule have also been found in forms falling within the concept of *P. pyracantha* and *P. verrucosa*. Six ovules per locule nevertheless seem to be the prevailing state over most of the distribution range of the genus. This also applies to the small-leaved Karoo form which, under the name *Gymnosporia saxatilis* (Burch.) Davison, was described as having two ovules per locule (Davison 1927). Reduction of ovule number to five or four per locule has so rarely been encountered that figures of less than six ovules per locule should be considered aberrant.

**Specimens examined**

— **3030** (Port Shepstone): Izotsha Waterfall (– CB), Nicholson 398 (Herb. Nich., NH); Icwaka River Gorge (– CC), Van Wyk 7179 (PRU); Umtamvuna Nature Reserve [UNR], Aerodrome (– CC), Abbott 1416 (NH, PRU); UNR, Beacon Hill (– CC), Nicholson s.n. (Herb. Nich.), Strey 7205 (NH, PRE), 8291 (PRE), 8325 (NH), Van Wyk 3336 (PRE, PRU), 4205 (PRU), 5137 (PRE, PRU), 5281 (PRU, holo.; PRE), 5286, 5292 (PRU); UNR, Erica Kloof (– CC), Abbott 1642 (NH, PRU); UNR, Smidmore Forest (– CC), Abbott 1518 (NH, PRU); UNR, The Crocodile (– CC), Van Wyk & Lowrey 6776 (PRU); Along a tributary of the Uvongo River on the farm of Mr H. Wichmann (– CD), Nicholson s.n. (Herb. Nich.); Mgongongo Kloof (– CD), Strey 7143, 7708 (NH, PRU).

— **3129** (Port St. Johns): Goss Point (– BD), Strey 10127 (NH); Lupatana (– BD), Strey 10224 (NH, PRU); South edge of Msikaba River Gorge (– BD), Acocks 13261 (PRU).

— **3130** (Port Edward): Sikubu River Gorge, tributary of the Mzamba River (– AA), Abbott 3170 (NH, PRU); Umtamvuna Nature Reserve [UNR] (– AA), Ward 7146 (PRE); UNR, Vulture Valley (– AA), Abbott 587 (PRU).

**Acknowledgements**

We are greatly indebted to H.B. Nicholson and A.T.D. Abbott for assistance during field work, Thea van Rensburg for technical assistance, Emisie du Plessis for constructive criticism of the manuscript, P. Hasse for help with the Latin diagnosis and the Natal Parks, Game and Fish Preservation Board and the Department of Agriculture and Forestry of Transkei for plant collecting permits. This study was partly financed by the University of Pretoria and the Foundation for Research Development of the C.S.I.R.

**References**

COATES PALGRAVE, K. 1977. Trees of southern Africa (also 2nd impression 1981). C. Struik Publishers, Cape Town.
DAVISON, J.D. 1927. Celastraceae R. Br. Bothalia 2: 289–346.
LOESENER, T. 1942. Celastraceae. In: Die natürlichen Pflanzenfamilien, eds Harms, H. & Mattfeld, J. Band 20b: 87–197, Duncker & Humblot, Berlin.

ROBSON, N.K.B. 1965. Taxonomic and nomenclatural notes on Celastraceae. Bolm Soc. broteriana 39: 5–56.
ROBSON, N.K.B. 1966. Celastraceae. In: Flora Zambesiaca 2(2): 355–418. Crown Agents for Overseas Governments and Administration, London.