Supplementary Table S1. The species names, taxonomic information, GenBank accession numbers, sampling locations, and voucher numbers of *Rhododendron* species examined in this study.

Species	Taxonomic information*		GenBank accession No.	Sampling location	Voucher number
	Subgenus	Section/Subsection			
Rhododendron purdomii Rehder & E. H. Wilson	Subg. *Hymenanthes*	Subsect. *Pontica*	NC_086505.1	Xi'an Zhuque National Forest Park, Shaanxi Province, China	LY2021052815
Rh. henanense subsp. *lingbaoense* Fang	Subg. *Hymenanthes*	Subsect. *Campylocarpa*	MT239363.1	Xiaoqinling National Nature Reserve, Lingbao, China	BOT20200615
Rh. williamsianum Rehder & E. H. Wilson	Subg. *Hymenanthes*	Subsect. *Williamsiana*	PP690644.1	Emei Mount, Sichuan, China	YYDJN02
Rh. griersonianum Balf. f. & Forrest	Subg. *Hymenanthes*	Subsect. *Griersoniana*	MT533181.1	Tengchong City, Yunnan Province, China	MYP20191001
Rh. calophytum Franch	Subg. *Hymenanthes*	Subsect. *Fortunea*	OM373082.1	Wolong National Nature Reserve, Sichuan Province, China	2018-WL-009
Rh. platypodum Diels	Subg. *Hymenanthes*	Subsect. *Fortunea*	MT985162.1	Wulong, Chongqing, China	LH Ma Wulong 2020516
Rh. oreodoxa var. *fargesii* (Franch.) D. F. Chamb	Subg. *Hymenanthes*	Subsect. *Fortunea*	OL639014.1	Shennongjia National Park, Hubei Province, China	ZQS01
Rh. przewalskii Maxim	Subg. *Hymenanthes*	Subsect. *Taliensia*	OL871190.1	Menyuan County, Haibei Tibetan Autonomous Prefecture, Qinghai Province, China	632126LY0128
Rh. delavayi Franch	Subg. *Hymenanthes*	Subsect. *Arborea*	MN413198.1	Guizhou Normal University	LJR-003
Rh. shanii Fang	Subg. *Hymenanthes*	Subsect. *Taliensia*	MW374796.1	Dafang County, Guizhou Province, China	DZJ202001
Rh. ovatum (Lindl.) Planch. ex	Subg. *Azaleastrum*	Sect. *Azaleastrum*	OR129260.1	-	-

Maxim					
Rh. vialii Delavay & Franch	Subg. *Azaleastrum*	Sect. *Azaleastrum*	PQ536992.1	Baima Mountain, Dêqên County, Yunnan Province, China	-
Rh. farrerae Sweet	Subg. *Tsutsusi*	Sect. *Brachycalyx*	OQ980386.1	Zhejiang Province, China	450150
Rh. huadingense B. Y. Ding & Y. Y. Fang	Subg. *Tsutsusi*	Sect. *Brachycalyx*	NC_063113.1	Taizhou, Zhejiang, China	HZ041835
Rh. latoucheae Franch	Subg. *Choniastrum*	Sect. *Choniastrum*	OL782150.1	-	-
Rh. simsii Planch	Subg. *Tsutsusi*	Sect. *Tsutsusi*	NC_053764.1	Jingshan, Hubei Province, China	mao_20190311
Rh. molle (Blume) G. Don	Subg. *Pentanthera*	Sect. *Pentanthera*	MZ073672.1	Changsha, Hunan, China	CSFI036611
Rh. capitatum Maxim	Subg. *Rhododendron*	Sect. *Rhododendron* Subsect. *Lapponica*	OL804295.1	Huzhu County, Haidong City, Qinghai Province, China	632126LY0192
Rh. nivale Hook. f	Subg. *Rhododendron*	Sect. *Rhododendron* Subsect. *Lapponica*	PQ536991.1	Baima Mountain, Dêqên County, Yunnan Province, China	-
Rh. thymifolium Maxim	Subg. *Rhododendron*	Sect. *Rhododendron* Subsect. *Lapponica*	OL804294.1	-	-
Rh. anthopogonoides Maxim	Subg. *Rhododendron*	Sect. *Pogonanthum*	OL871191.1	-	-
Rh. ambiguum Hemsl	Subg. *Rhododendron*	Sect. *Rhododendron* Subsect. *Triflora*	OR455462.1	Gongga Mountain National Nature Reserve in Sichuan, China	2019-GG-015
Rh. concinnum Hemsl	Subg. *Rhododendron*	Sect. *Rhododendron* Subsect. *Triflora*	MT239366.1	Xiaoqinling National Nature Reserve, Lingbao County, Henan Province, China	BOT20200613
Rh. micranthum Turcz	Subg. *Rhododendron*	Sect. *Rhododendron* Subsect. *Micrantha*	MT239365.1	Funiu Mountain District, Luanchuan County, Henan Province	BOT20200615
Rh. datiandingense Z. J. Feng	Subg. *Rhododendron*	Sect. *Vireya* Subsect. *Pseudovireya*	NC_057644.1	Guangdong Yunkaishan National Natural Reserve, Maoming City, China	IBSC 0858371

Rh. × *pulchrum* Sweet	Subg. *Tsutsusi*	Sect. *Tsutsusi*	MN182619.1	Jiyang College of Zhejiang A&F University	HZ041286
Rh. kawakamii Hayata	Subg. *Rhododendron*	Sect. *Vireya* Subsect. *Pseudovireya*	NC_058233.1	Shanlinxi forest recreation area	511025

* The classification of *Rhododendron* at the subgenus and section/subsection level is according to Fang et al. [9], Chamberlain et al. [11], and Geng [28]. - It indicates that the related literature lacks information on the collection location and voucher specimen number of the species.