Adiantum nelumboides X. C. Zhang is an epithial fern belonging to the subfamily Vittarioideae of Pteridaceae (Zhang 2012; PPGI 2016). This species is a unique and beautiful plant with orbicular or orbicular-reniform single pinnule. Adiantum nelumboides is endemic to the Shizhu County (Sichuan, China) and is endangered in its native habitat by over-collecting, road-building, and water reservoir construction (Liao et al. 2007, 2008; Liu et al. 2007), and was categorized as critically endangered in China (Dong et al. 2017). This species is known as 'He ye jin qian cao' which has been used in Chinese medicine for more than 100 years. Adiantum nelumboides was once treated as Adiantum reniforme Linnaeus var. sinense Y. X. Lin (Lin 1980; Lin and Gilbert 2013), but it is now recognized as an independent species rather than a variety of A. reniforme (Zhang 2012). The status was supported by cytological, palynological, and molecular phylogenetic evidence (Wang et al. 2015). Because of its unique orbicular-reniform pinnule shape, it is now cultivated as an ornamental plant.

In this study, we reported the complete chloroplast genome of A. nelumboides for the first time. Fresh leaf material was collected from Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Yunnan, China, and the voucher specimen was deposited at the Herbarium of Xishuangbanna Tropical Botanical Garden (HTBC, voucher number: Liu-CP12). The experiment procedure including genome sequencing, assembly, and annotation is as described in Liu et al. (2019). Previously published plastomes from the same genus, including A. aleuticum, A. capillus-veneris, A. shastense, and A. tricholepis were used to guide the sequence assembling and annotation. The newly sequenced plastid genome was submitted to the GenBank (accession number MN709399).

The complete chloroplast genome of A. nelumboides is 149,956 bp in length with 42.8% GC content, with the typical quadripartite structure including a large single-copy (LSC) region of 82,936 bp and a small single-copy (SSC) region of 21,483 bp, which are separated by two inverted repeats (IR) of 22,596 bp. The plastome consists of 131 genes (87 protein-coding genes, 36 tRNA, and 8 rRNA genes).

The phylogenetic position of A. nelumboides was reconstructed by incorporating the newly generated plastome of A. nelumboides into a matrix including 29 taxa covering all five subfamilies of Pteridaceae (PPGI 2016), with two species of subfamily Cryptogrammoideae (Cryptogramma acrostichoides and Llavea cordifolia) designed to be the out-group taxa. 84 coding genes were selected, assembled, and aligned into a single matrix. The phylogenetic analyses were carried out using RAxML with 1000 bootstrap replaced under the GTR+GAMMA substitution model (Stamatakis 2006).

Five species of Adiantum formed a clade, with A. nelumboides and A. capillus-veneris as sister to each other (Figure 1). Two subfamilies (Cheilanthoideae and Vittarioideae) are strongly supported as monophyletic; however, the subfamily Parkerioideae was founded to be clustered in the subfamily Pteridoideae.

The complete chloroplast genome sequence will provide important and useful resources extending conservation genetics (Liu et al. 2007; Fu and Chen, 2019) of this ornamental and medicinal species, especially to the ex-situ conservation of this critical endangered species (Huang et al. 2008; Liao et al. 2013; Wu et al. 2010).
Disclosure statement
The author is responsible for the content and writing of the paper.

Funding
This work was financially supported by projects from Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences [2017XTBG-T03, 2017XTBG-F05] and Scientific Research Program of Sino-Africa Joint Research Center [SAJC201607].

References
Dong SY, Zuo ZY, Yan YH, Xiang JY. 2017. Red list assessment of lycophytes and ferns in China. Biodiver Sci. 25(7):765–773.
Fu Q, Chen LQ. 2019. Comparative transcriptome analyses of two reproductive modes in Adiantum reniforme var. sinense targeted to explore possible mechanisms of apogamy. BMC Genet. 20(1):55.
Huang F, Cheng ZY, Long CL. 2008. Tissue culture and rapid propagation of Adiantum reniforme L. var. sinense Y.X.Lin. Plant Physiol Comm. 44(2):307–308.
Liao JX, Jiang MX, Huang HD. 2008. Effects of soil moisture on ecophysiological characteristics of *Adiantum reniforme* var. *sinensis*, an endangered fern endemic to the Three Gorges Region in China. Amer Fern J. 98(1):26–32.

Liao JX, Jiang MX, Huang HD. 2013. Growth characteristics of *Adiantum reniforme* var. *sinensis* and *A. capillus-veneris* in response to light and soil moisture. Nordic J Bot. 31(4):500–504.

Liao JX, Shi HW, Jiang MX, Huang HD. 2007. Leaf traits of natural populations of *Adiantum reniforme* var. *sinensis*, endemic to the Three Gorges region in China. Photosynthetica. 45(4):541–546.

Lin YX. 1980. New taxa of *Adiantum* L. in China. Acta Phytotaxon Sin. 18(1):101–105 (in Chinese).

Lin YX, Gilbert MG. 2013. *Adiantum*. In: Wu ZY, Raven PH, Hong DY, editors. Flora of China. Vol. 2–3 (Pteridophytes). Beijing: Science Press; p. 765.

Liu HM, Schneider H, Yu Y, Fujiwara T, Khine P K. 2019. Towards the conservation of the Mesozoic relict fern *Christensenia*—a fern species with extremely small populations in China. *J Plant Res.* 132(5):601–616.

Liu XQ, Giture RW, Chen LQ. 2007. Genetic variation in the endangered fern *Adiantum reniforme* var. *sinense* (Adiantaceae) in China. Ann Bot Fennici. 44:25–32.

PPGI. 2016. A community derived classification for extant lycophytes and ferns. *J Syst Evol.* 54:563–603.

Stamatakis A. 2006. RAxML-VI-HPC: maximum likelihood-based phylogenetic analyses with thousands of taxa and mixed models. Bioinformatics. 22(21):2688–2690.

Wang AH, Sun Y, Schneider H, Zhai JW, Liu DM, Zhou JS, Xing FW, Chen HF, Wang FG. 2015. Identification of the relationship between Chinese *Adiantum reniforme* var. *sinense* and Canary *Adiantum reniforme*. BMC Plant Biol. 15(1):36.

Wu H, Liu XQ, Ji H, Chen LQ. 2010. Effects of light, macronutrients, and sucrose on germination and development of the endangered fern *Adiantum reniforme* var. *sinense* (Adiantaceae). *Sci Hortic.* 125(3):417–421.

Zhang XC. 2012. Lycophytes and ferns of China. Beijing: Peking University Press.