Huperzia nanlingensis (Lycopodiaceae), a new terrestrial firmoss from southern China

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Abstract

Huperzia nanlingensis sp. nov. (Lycopodiaceae) is described as a new species from southern China. The distinguishing characters, description, ecology, conservation status, detailed illustrations and photographs are provided. The species resembles H. serrata in leaf shape and serrations on the margin of leaves. However, it is clearly separated as a distinct species on the basis of quantitative morphology, anatomy, and molecular evidence. Although the observed morphological differences between these two species are superficially subtle, H. nanlingensis can be distinguished from H. serrata by purple coloration at the tip and base of leaves, higher number of teeth on one side of the tropophyll, higher seasonal index and slightly crispate leaf margin.

Key words: IUCN Red List, lycophyte, morphometrics, Huperzia sect. Serratae

Introduction

Huperzia Bernhardi (1801: 126), commonly known as firmoss, is a genus of ca. 55 species distributed in the temperate and arctic zones of the world (Zhang & Iwatsuki 2013). In China, it is currently represented by 27 species (18 endemic) grouped under two sections, based on the presence and absence of serrations on the margin of leaves (Zhang & Kung 1998, Zhang & Kung 2000, Zhang 2004, Zhang & Iwatsuki 2013). During field survey in the border area of Guangdong and Hunan province in 2001, we came across an unidentified species of Huperzia. This species was found in the same habitat zone where Huperzia serrata (Thunb.) Trevisan de Saint-Léo (1875: 248) [=Lycopodium serratum Thunb. in Murray (1784: 944)] commonly occurs. However, the specimens looked different in habit, coloration of leaves, etc. compared with H. serrata. In 2007, additional explorations were carried out in the surrounding areas and more specimens were collected. We conducted thorough investigations of the herbarium specimens of similar species of Huperzia deposited in different herbaria all over China. Detailed morphological and anatomical studies were performed to investigate whether the specimens collected from the border area of Guangdong and Hunan provinces represented an undescribed species. After consulting all the available literature (Kung 1980, Ching 1981, Ching & Wu 1983, Long 1983, Kung 1988, Yang 1989, Zhang & Kung 2000, Wang & Wang 2001, Li et al. 2004, Zhang 2004, Chu 2006, Wu et al. 2006, Zhang & Iwatsuki 2013) and comparing the digital images from different herbaria abroad, we found that the characters of this species did not match any description of Huperzia previously reported from China. Therefore, we identify this species as new and describe it herein.

Huperzia nanlingensis Y. H. Yan & N. Shrestha, sp. nov. (Figs. 1 & 2 A, B)

Affinis H. serrata (Thunb.) Trevis., sed caulibus elatis, foliis purpuratis, heterophyllis; foliis sterilibus coriaceis, 20–30 mm longis, 3–5 mm latis, lanceolatis, serratis, crispis, purpuratis, fasciculatis vel verticillatis; foliis fertilibus subulatis, 2–3 mm longis, 0.5 mm latis, integris, reflexis; soris nephroideis, magnis, aggregatis differt.
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Huperziaceae species in China. 

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