Floral size variation causes differentiation of pollinators and genetic parameters in Alpinia nieuwenhuizii, a flexistylous ginger (Zingiberaceae)

Abstract

Floral size dimorphism, pollination, and genetic variation of Alpinia nieuwenhuizii (Zingiberaceae), a flexitylous ginger, were studied. This study revealed that floral size differed among habitats (i. e., roadsides/riversides vs. forest floors). The effective pollinators of small-flowered populations of the species on a forest floor were different from those of large-flowered populations along roadsides/riversides. Using inter-simple sequence repeat (ISSR) PCR, considerable genetic differentiation was detected between small- and large-flowered populations. These results indicate that reproductive isolation in A. nieuwenhuizii owing to the differentiation of pollen vectors between two floral size morphs may lead to genetic differentiation between the two morphs.