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New materials of Rhamnaceae from the middle Miocene rainforest of southeast China

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Abstract

Rhamnaceae was widespread over the Northern Hemisphere during most of the Cenozoic. Abundant fossil materials play an important role in evaluating divergence times and biogeographic histories within Rhamnaceae. Two new occurrences, namely *Ventilago fujianensis* sp. nov. and *Paliurus pubescencea* sp. nov., presented here and reported from the middle Miocene of Zhangpu County, south Fujian Province based on diagnostic winged fruits. Their occurrences suggest that the diversity of Rhamnaceae had occurred in the middle Miocene of Southeast China. The morphological and anatomical features of the two species are described in detail. The fossil records of *Ventilago* are rare documentation, and our founding adds new elements to understand the genus history. *P. pubescencea* sp. nov. is characterized by fruit pubescence which shows a closer affinity to the *P. ramosissimus* group. As a result, we deduce that *Paliurus* probably had differentiated into two groups in low latitude South Fujian during the middle Miocene. Angiosperm macrofossils from numerous families presented in the Fotan flora indicate a diverse rainforest flora surrounded a lake or wetland in Zhangpu county, Fujian Province during the middle Miocene.

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