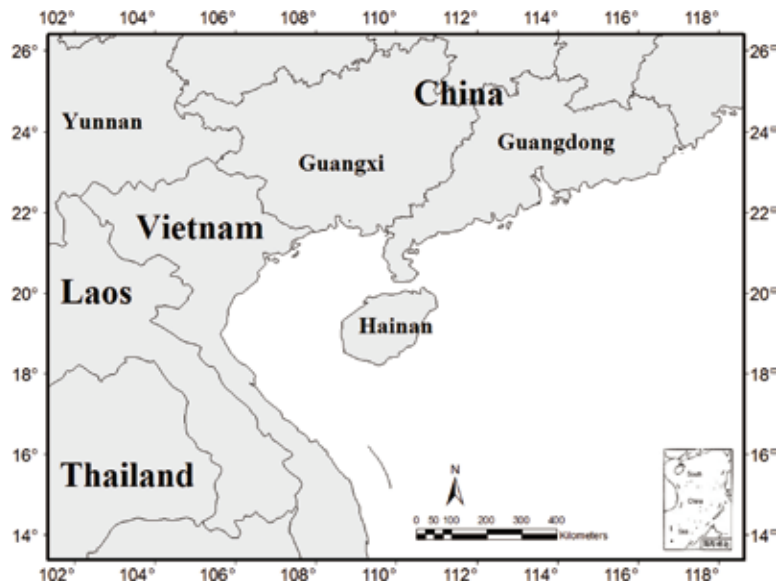


Botanical Studies Suggest Origin of Hainan Island

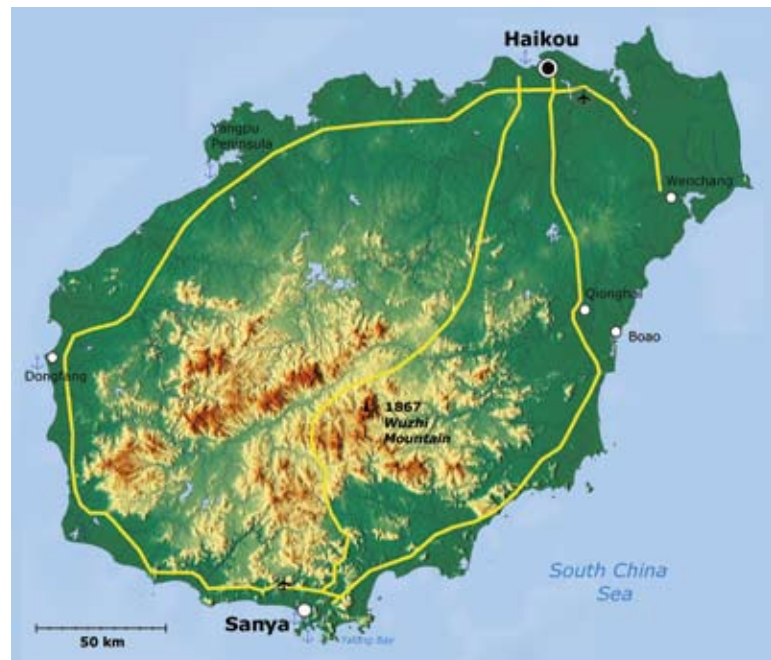
Hainan Island, the smallest and southernmost province of China, has high mountains in the center and low lands at the periphery. From the late Mesozoic, the Beibu Gulf lithosphere was drawn away, and Hainan moved southeast along the Red River fault and revolved clockwise to the present location. The continental origin of Hainan and the Indo-Malaysian or mainland affinity of its flora remain debatable today.

Understanding the affinity and evolution of its local flora is important for understanding the plant geography of Hainan Island. Based on the inventory of Hainan plants, Prof. ZHU Hua from Xishuangbanna Tropical Botanical Garden (XTBG) revisited the native plant species, checking, analyzing, and adding species to their database, in order to identify the island's floristic patterns and geographical elements, examine the affinity and evolution of its flora, and provide bio-geographical evidence for the origin of the island.

He recognized a total of 3,894 native seed plant species from 1,283 genera and 196 families from Hainan Island. The floristic composition revealed that the island of Hainan is tropical in nature. Then, among the 19 genera endemic or approximately endemic to China, only seven are endemic to Hainan. The very low endemism of the flora indicated



Geographical location of Hainan Island and neighboring regions.



Topographical map of Hainan Island. (From Wikipedia, Hans Braxmeier Derivative work by Anna Frodesiak)

that the island had a continental origin compared with other tropical islands. Hainan has more floristic similarities to Vietnam and Guangxi at the family or generic level than its nearest part of the mainland, Guangdong. It also has the highest proportion of mammals shared with Vietnam, and the lowest proportion with Guangdong.

The disharmonic flora of Hainan Island revealed that its present

location was not its original site. ZHU argued that the island could have been in contact with northern Vietnam and Guangxi at least in Eocene. In fact, Palaeobotanical studies suggested that Hainan could have been in a much more northerly location with a subtropical climate in the Eocene. It supports the deduction that Hainan could have been adjacent to Vietnam and Guangxi. Such an assumption also supported

conclusions from palaeomagnetic and volcanism studies that the Qiongzhou Strait could have been formed by an active rift structure, and Hainan drifted to the present location by moving southeast from higher latitude.

The study, entitled “Biogeographical Evidences Help Revealing the Origin of Hainan Island”, has been published in *PLoS ONE*.