

Evolution of European Gliridae and brachio-lophodont dental patterns

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The Gliridae is an extant rodent family only exists in the Old World. In recent classification, they comprise three subfamilies Graphiurinae (including Graphiurus, the only glirids live in Africa), Leithiinae (including Chaetocauda, Dryomys, Eliomys, Muscardinus, Myomimus and Selevinia) and Glirinae (including Glirulus and Glis). Glirid is particular by its brachydont lophodont tooth. The family first appeared in Europe during the Early Eocene (around 50 million years ago). By reviewing the whole family, at least three big diversifications were observed. One of them appeared just after the Eocene-Oligocene transition, during an event called the “Grande Coupure”. This event characterizes an extinction crisis affecting the endemic Eocene European fauna, possibly related to several external environmental factors, such as the Oi-1 Glaciation. The second one took place in the Early Miocene (the age of Mi-1 Glaciation happened), and the recent one in the Middle Pliocene.

In the first part of this thesis, I studied the classification of the Gliridae. The systematic phylogeny has never been attempted on the whole family before. In my new result, the primitive clades, such as Gliravinae and Bransatoglirinae, are closed to the former research proposed. However, the rest of the subfamilies are mixed. Two main monophyletic clades appeared in the Oligocene. Two small groups, Chaetocauda + Graphiurops and Armantomys + Simplomys, fall in the basal position by its simplified dental pattern. However, these species are all from Neogene. The convergence should be considered among those species.

In the second part of this thesis, I tried some new methods on the isolated tooth of glirids. 3D CT data were used to analyzing the enamel thickness of the upper/lower first molars, and 2D geometric morphometrics was focused only on the upper first molar of glirids. And finally, I compared these new dental data with my phylogenetic result, and proposed a new scenario of the dental pattern change during the age.

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