

Comparison of fiber digestion between two sympatric flying squirrel species, *Petaurista leucogenys* and *Pteromys momonga*

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Japanese giant flying squirrels *Petaurista leucogenys* and Japanese flying squirrels *Pteromys momonga* are often sympatric. Both flying squirrel species are nocturnal and arboreal, have a similar ecological niche, but differ greatly in body size. *P. leucogenys* are well known to be almost folivorous, especially eating tree leaves, buds, flowers, fruits, nuts, seeds, while food habits of *P. momonga* are not elucidated well. In terrestrial herbivores, larger species are believed to use the most abundant resources in their habitat even if the dietary energy density is low but smaller ones prefer diets high in the energy density. In this study, thus, according to the fibrous feed digestibility, we examined the hypothesis that the large species *P. leucogenys* are more folivorous than the smaller species *P. momonga*.

Two *P. leucogenys* and five *P. momonga* were housed singly in cages and given commercial rabbit feed and water *ad libitum*. A digestion trial consisting of a

preliminary feeding period and a fecal collection period for 7 days each was conducted. Feces were collected once daily. Feed intake and body weight were measured once every 24 hours and every 4 days, respectively. We determined apparent digestibility.

Body weight maintained during the digestion trial as relative body weights at the end of trial were 106.8% and 100.0% in *P. leucogenys* and *P. momonga*, respectively. Crude protein digestibility in *P. leucogenys* (68.3%) was comparable to that in *P. momonga* (68.6%). On the other hand, NDF (neutral detergent fiber) digestibility in *P. leucogenys* (50.9%) was significantly higher than that in *P. momonga* (41.1%). Dry matter digestibility in *P. leucogenys* (70.6%) was also significantly higher than that in *P. momonga* (65.7%). If a similar level of NDF was given, dry matter digestibility of both flying squirrels was higher than that of Syrian hamster *Mesocricetus auratus* sometimes used as experimental herbivore but lower than that of Guinea pig *Cavia porcellus*. These results indicate that both flying squirrel species possess substantial ability to utilize fibrous feed enabling folivory but the larger species is slightly better adapted to tree leaf consumption than the smaller one.