

研究论文

棕果蝠取食对两种榕树种子萌发行为的影响

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收稿日期 2006-5-7 修回日期 2006-11-28 网络版发布日期: 2007-4-25

摘要 在实验室利用聚果榕(Ficus racemosa)和对叶榕(Ficus hispida)成熟的果实饲喂笼养棕果蝠(Rousettus leschenaulti), 比较了不同处理的3组种子的萌发行为: (1)棕果蝠粪便中的种子; (2)被吐出的果渣中的种子; (3)成熟果实中的种子(对照)。棕果蝠取食行为显著影响了两种榕树种子的萌发过程, 3种不同处理的种子萌发过程及最终萌发率(GP)之间都存在显著的差异。聚果榕种子经过棕果蝠消化道后GP显著降低, 而对叶榕种子的GP显著提高。棕果蝠粪便中的聚果榕种子萌发开始(GS)和最短萌发时间(T_{min})均比对照种子延迟了2 d, 但其粪便中的对叶榕种子GS比对照种子提前了1 d, T_{min}提前了2 d; 与之相似, 前者种子萌发比果实中种子提前2 d达到萌发总量的50%(T₅₀), 但后者没有改变T₅₀。不同种榕果果渣中的种子萌发行为也有重大差异: 聚果榕果渣中种子的T_{min}和T₅₀均比对照种子延迟1 d, GS没发生改变; 而对叶榕果渣中种子的T_{min}比对照种子提前了3 d, GS提前1 d, T₅₀没有改变。棕果蝠取食两种榕果后在飞行过程中排泄, 进而有效的散布种子; 而且通过消化明显改变了种子萌发行为, 使种子萌发类型更为多样, 增加了种子在不同时空条件下萌发的可能性。

关键词 种子萌发; 果蝠; 棕果蝠; 取食; 聚果榕; 对叶榕; 西双版纳

分类号 Q958

The effect of ingestion by bat (*Rousettus leschenaulti*) on seed germination of *Ficus racemosa* and *Ficus hispida* (Moraceae)

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Abstract The fulvous fruit bat *Rousettus leschenaulti* (Pteropodidae) in Xishuangbanna, China consumes a variety of wild fruits, including several figs. The aim of this study was to determine the effect of manipulation by bats on seed germination of two fig species. Bats were fed using fresh fruits of *Ficus racemosa* and *Ficus hispida* under captive conditions and three groups of seeds were collected and seed germination were compared: (1) seeds defecated by bats; (2) seeds from ejecta spit out by bats; (3) control seeds, which were obtained from ripe fruits taken directly from parent trees, the pulp on them was cleared. Seed germinated significantly different among the different treatments for both fig species. *F. racemosa* seed passage through the gut of *R. leschenaulti* resulted in a decrease in final germination percentage (GP), but increase for *F. hispida* seeds. Gut treatment resulted in an increase in germination start (GS), minimum imbibition time (T_{min}) and time necessary for reaching 50% germination capacity (T₅₀) of 2 day for *F. racemosa* seeds, but a decrease in GS of 1 day, T_{min} of 2 days, and had no effect on T₅₀ for *F. hispida* seeds compared control seeds. *F. racemose* seeds from ejecta had a T_{min} and T₅₀ 1 d longer than th

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at of control seeds, but did not changed the GS . The treatment received by *F. hispida* seeds in ejecta resulted in a decrease in GS of 1 d, and T_{min} of 3 d, but had no effect on T_{50} . The bat served as seed dispersers which dispersed seeds mainly through fecal deposition, and changed seed germination behavior through ingestion. The foraging habits of the bat produced a population of seeds with considerable variability in their germinability, and this will likely ensure that only parts of seeds will germinate at any one given time, which can enhance the survival of seeds and spread germination relatively evenly over a long time period.

Key words [seed germination](#) [frugivorous bat](#) [Rousettus leschenaulti](#) [foraging](#)
[Ficus racemosa](#) [Ficus hispida](#) [Xishuangbanna](#)

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