

SUPPLEMENTARY DATA

FIG. S1. (A) *Paepalanthus bromelioides* in vegetative phase upon a termite mound. Spiders (B) *Alpaida quadrilorata* and (C) *Latrodectus geometricus*. (D) Grasshopper. (E) Hylidae frog sheltered inside the phytotelmata. (F) Phytotelmata filled with debris.



FIG. S2. (A) Termite mound. (B) Cardboard strip inserted (arrow) inside the mound (see Methods for explanation). (C) Termites feeding on cardboard strip (arrow).



FIG. S3. (A, B) Bioassays for detecting bacterial proteolytic activities. (C, D) Tests for guanine degradation. (E, F) Medium with antibiotic (tetracycline) representing two bacterial colonies surveyed from *Paepalanthus bromelioides* phytotelmata. (A) and (B) degraded protein (there is a proteolytic halo on each dish); (C) did not degrade guanine (there is no development of colonies on the dish), and (D) degraded guanine (the colony uses guanine as source of nutrients for its development); (E) and (F) colonies show growth inhibited by paper discs soaked with antibiotic, illustrating their effectiveness.

