Thesis Title	Biodiversity and Taxonomy of Coprophilous Ascomycetes from Wild Herbivores in Kenyan National Parks, East Africa
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ABSTRACT

Coprophilous ascomycetes are saprobic fungi that have adapted to live on animal dung. Ascospores of true coprophilous ascomycetes only sporulate after passing through the gut of animals.

In this study, the diversity of coprophilous ascomycetes was investigated between 2008 and 2012. Initially, several samples of animal dung such as giraffe, zebra, elephant, dikdik, buffalo and impala were collected from Kenyan National Parks. The specimens were incubated at room temperature using the moist chamber technique for up to three months. The occurrence of dung fungi was then observed and their identity was determined based on morphological characteristics.

Based on this study, at least 10 genera of coprophilous ascomycetes were present. These included *Arnium, Ascobolus, Saccobolus, Chaetomium, Podospora, Schizothecium, Sordaria, Sporormiella*, *Zopfiella* and *Zygopleurage.* In total, 127 fungal isolates were examined. The most common coprophilous ascomycetes from wildlife dung were *Podospora communis, Sporormiella minima, Zygopleurage zygospora*, and *Saccobolus depauperatus.* In addition, our study also described two

new species namely, *Ascobolus nairobiensis* and *A. tsavoensis.* Seventeen new records including *Schizothecium conicum*, *S. dubium*, *S. curvuloides* var. *curvuloides, S. glutinans, Chaetomium seminis-citrulli, Sporormiella leporina, Podospora minor, Ascobolus bistisii, Ascobolus calesco, Saccobolus citrinus, S. diffusus, S. infestans, S. platensis, S. truncatus, Arnium arizonense, Zopfiella longicaudata* and *Sordaria fimicola* were described and illustrated from this study.

Our data revealed that abiotic and biotic factors such as wildlife species, habitat type and the season influence the occurrence, species composition, diversity and distribution of some species of coprophilous ascomycetes. We also noted that most *Ascobolus* species sporulated mainly on dung that was cultured immediately after sampling. Most *Schizothecium* species seemed to prefer dung from grazing animals. Some genera such as *Saccobolus* were observed to sporulate on several dung types, whereas others, including *Chaetomium*, were observed to prefer browser animal dung. Giraffe dung samples yielded a high diversity of coprophilous ascomycetes. The dung of impala, giraffe, dikdik, waterbuck and elephant yielded a high number of specimens and species of ascomycetes.

The animal species (dung type), dung structure, texture, moisture content and age were important variables that determined the occurrence of coprophilous ascomycetes. The age of dung at sampling and the time taken from sampling to incubation had a notable influence on the composition of ascomycetes sporulating with most of the early sporulating species being less common on old or preserved dung.

There was a predictable sequence of species sporulating indicating a form of succession in most species. However, some species were observed to sporulate across the entire period of dung incubation.

Keywords: Ascobolaceae/Diversity/Habitat/Wild animal