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Mini Review

Pathogen of Fungi in Grassland

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Abstract

Meadows are significant essential makers and capability as significant parts of significant watersheds. A physiognomic or structural approach cannot provide a concise definition of grasslands, but they can be described as vegetation communities that experience periodic droughts and have canopies dominated by grasses and grass like plants. Except for Antarctica, grasslands are found all over the world. Pathogenic and symbiotic interactions between fungi and grasses are possible. It is known that fungal pathogens, herbivorous mammals, other grassland animals, and insects all play important roles in preserving grasslands' biomass and biodiversity. Although the majority of pathogenicity studies on Poaceae members have focused on crops that are important to the economy, the plant fungal pathogenic interactions that are involved can apply to the entire range of natural ecological conditions. Delineating the fungal pathogen communities and their interactions in man made monoculture systems and extremely diverse natural ecosystems is therefore crucial. Combining studies of traditional phytopathology, taxonomy, and phylogeny with cutting edge methods like Next Generation Sequencing (NGS) can lead to a deeper comprehension of the major fungal players. The development of experimental designs that take into account the ecological complexity of the relationships between grasses and fungi, both above and below ground, is of the utmost importance. The loss of species diversity in grasslands increases interactions like mutualism, predation, and infectious disease transmission.

Keywords: Ascomycetes, Foliar diseases, Graminicolous fungi, Grassland ecology, Human and plant disease, Phytopathogens, Soil borne diseases

INTRODUCTION

There is no compact and unambiguous definition for meadows. Using a physiognomic or structural approach, the absence of particular vegetation features could be used to define grassland (Alexander, et al., 2010). However, Risser provided a definition that seemed to be more promising, describing grasslands as "types of vegetation that are subject to periodic drought, that have a canopy dominated by grass and grass like species, and that grow where there are fewer than 10 to 15 trees per hectare." This definition of grasslands was provided by Risser. Grasslands can be found all over the world, with the exception of the Antarctic continent.

LITERATURE REVIEW

According to the classification provided by "The Pilot Analysis of Global Ecosystems (PAGE)," grasslands cover 52,544,000 km^2, or 40.5% of the world's land mass (excluding urban areas when nighttime lights are used) compared to the other major vegetation cover types, grasslands cover more land area using the PAGE classification (Burdon, et al., 1977). For instance, agriculture covers 36.23 106 km^2, while forests cover 28.97 10 6 km^2. In addition, according to estimates from 1995, grasslands are the second largest type of land inhabited by humans after agricultural land. Additionally, grasslands cover relatively large portions of many of the world's major watersheds (Cardinale, et al.,

Fields are exceptionally different environments with numerous associations. Diverse species of grasses, including genotypes of the same species, and various dicots make up the majority of grassland plant communities. However, grasses represent the majority of the community. The population structure of grasslands is important for their productivity and resource utilization (Guo, et al., 2014). However, grassland pathogens are a major factor in these communities productivity. Here, we investigate how the dynamics of grasslands are affected by the presence of fungal pathogens. The diversity of fungal pathogens has a significant impact on the dynamics of their populations, and the population structure of grassland is under question. Additionally, the dynamics of specialist and generalist pathogens differ (Hendriks, et al., 2013). Grassland host diversity increases the number of generalist pathogens while decreasing the number of specialist pathogens. Be that as it may, this might be profoundly fluctuate in view of the numerous biotic what's more, abiotic factors in fields. As a result, pathogens and their hosts engage in intricate interactions in natural grasslands (Janzen, et al., 1970).

DISCUSSION

Some grassland microbiota

Grass pathogens have been the subject of numerous studies. Despite the fact that the majority of pathogen related studies focus on economically significant monocultures. They provide valuable information about the genomes of the populations involved (Larez, et al., 1986). Therefore, in order to demonstrate how crucial it is to carry out a proper study on the pathogenic fungal population in natural grasslands, we will describe a number of studies on selected well-studied pathogens in this section. In this section, we describe four well studied species: Bipolaris sorokiniana, colletotrichum graminicola, fusarium graminearum, and pyrenophora tritici-repentis. Each species was chosen to explain important characteristics of Poaceae specific fungal pathogens (Malcolm, et al., 2013). Data on genomes relevant to pathogenicity and the race structure of pyrenophora tritici repentis, as well as its connection to economically important crops and certain natural grassland systems, have been extensively studied.

Infections of people and different creatures

Direct review in regards to parasitic microbes on field creatures isn't accounted for. Therefore, it is possible to gain insight by examining the connection between current knowledge regarding domestic and industrial farms like cattle farms. A grassland fungus called *Pithomyces chartarum* is the cause of sheep's chronic facial eczema, which has been extensively studied. In monocots, including grasses, *Pithomyces chartarum* is a well-known saprobe, and it causes eczema of the face in camelids and ruminants. *Pithomyces chartarum* produces sporidesmin, a mycotoxin that causes edema, ulceration, and crusting dermatitis on the face and ears of camelids (Kwon, et al., 1998). Sporidesmin concentrates in bile and damages the liver through the bile duct. There is no published data on direct fungal infections of humans caused specifically by grassland fungi, and no direct research has been conducted on fungal diseases of humans relevant to grasslands. However, there were reports of diseases brought on by mycotoxins in the cattle industry. Mycotoxins pose a threat not only to humans who consume dairy products but also to cattle. Aflatoxins (AF) produced by *Aspergillus* species, Deoxynivalenol (DON) produced by Fusarium species, Fumonisins (FUM), Ochratoxin A (OTA) produced by Penicillium and *Aspergillus* species, T-2 Toxin (T-2) and Zearalenone (ZEN) are the primary mycotoxin categories that are relevant to the dairy industry. According to van Egmond, the well-known aflatoxin M1 is a carcinogen (Singh, et al., 2006).

CONCLUSION

Grasslands are a vital ecological and commercial component of the planet's vegetation. The stability of grasslands is greatly influenced by the fungi that live there. For gaining an understanding of the ecology of grasslands, it is essential to have a more comprehensive understanding of the fungal pathogens found in grasslands. Additionally, gaining an understanding of the behavior of fungal pathogens in grasslands with a wide range of species may provide novel insights into how to manage diseases in commercial crop fields. In this audit, we address the impacts of contagious microbes in meadows and examine their perplexing communications.

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