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Short Communication

Impact of Microbe in Degradation of Bamboo Plantation of Balpakram National Park of Meghalaya with Special Reference to the Parasitic Forms, India

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Abstract

Most developing countries, especially in Africa, have been characterized by poverty and hunger, a situation that has been traced to the daily rapid reduction in the quality and quantity of available water resources. Less than 1% of the global water resource is reliably available for human consumption. A larger proportion of this percentage is polluted in most settlements in the developing nations. This therefore necessitates the call for adequate management of the existing source in these countries. The research paper looked at Nigerian major ecological zones based rainfall amount using normal of 1971 to 2000 with a based period of 2010. This paper presents the potentials of adopting the technology in the management of Nigerian surface waters. It envisages that the efficacy of the technology could reduce the present level of slow response to water quality assessment, fund wastage, duplication of duties, and ensure adequate distribution of good water to the people.

Keywords: Assessment, monitoring, surface water, Nigeria major ecological zones, rainfall amount.

Introduction

The Balpakram National Park is located to the extreme South Garo Hills of Meghalaya at a distance of 90 kms from Baghmara. This pocket of pristine beauty named Balpakram National Park is also close to the international boundary of Bangladesh. It is established in the year 1987 and one of the favorite national parks among adventure enthusiasts who like to explore the wildlife and flora of various regions.

Material and Methods

Balpakram National Park of South Garo Hills district was visited personally during the year 2008-2009 to detect the pathogen which are responsible for the degradation of bamboo plantation. The disease materials of bamboo plants were collected in sterile polythene bags separately in an aseptic condition. Infected stem, roots and leaf were collected, noted their symptoms and brought to the laboratory aseptically (figure 1). The myceliums of pathogen were grown in different cultural media. Some of the materials were send to Dehra Dun Forest Laboratory for identification.

Result and Discussions

Symptoms of the disease-I: Blackish brown spots appeared on the supper surface of the leaf which was measured 1mm to 2mm in length. The spots were developed in paralled form and formed spindle shaped spots. The numbers of spots were numerous on matured leaves (figure 2).

Figure - 1
Infected bamboo plantation in Balpakram National Park

Figure-2
Leaves infected by *Curvularia geniculate*

Morphology of the pathogen and identification: Mycelium septate, light brown in colour, conidiophores brown, septate, curved at the tip, narrowed towards the base. Conidia is pale brown, septate, born usually in dense panicle, boat shaped. Conidia measuring 22.8 - 42µ×7 – 11.5µ in size. The pathogen was identified as Curvularia geniculata (figure. 3).

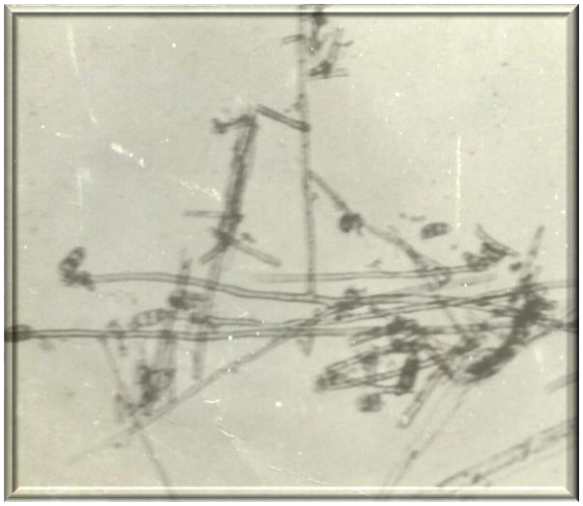

Figure-3
Curvularia geniculate

Symptoms of the disease-II: Leaf spots developed on the upper surface of the leaf as pale brown, circular to sub circular or occasionally elliptical, dark brown when old. Old leaves were generally infected, young were free from disease (figure 4).

Figure-4
Leaves infected by Pseudocercospara sp.

Morphology of the pathogen and identification: Mycelium partly immersed, hyaline, septate. Conidiophore in pale to light brown, erect or divergent. Straight at the base but geniculate at the apex. Conidia pale to mid brown, slightly curved, fusiform, obtuse at apex, septate. Conidia measuring 20 – 40 µ × 6 - 8µ in size. The pathogen was identified as Pseudocercospora bambusae (figure 5).

Figure-5
Pseudocercospara sp.

Symptoms of the disease- III: A very thin white powdery growth developed on both the surface of the leaf. Generally disease was observed on the leaf (figure 6). White patches originated as minute discoloured specks from which a powdery mass radiates on all sides.

Figure-6
Leaves infected by Cylindrocarpon sp.

Morphology of the pathogen and identification: Mycelium white, septate. Conidiophores simple and branched. Both macro and microconidia present. Macro conidia cylindric, non septate, measuring 3.5 -11.5 µ × 3.0 -3.5µ. The pathogen was identified as Cylindrocerpon sp (figure 7).

Figure-7
Cylindrocarpon sp.

Symptoms of the disease-IV: Red brown to dark brown colour was observed on the surface of the leaves (figure 8). Both young and old leaves were observed to be infected. Lower surface was free of spots.

Figure-8
Leaves infected by Periconia sp.

Morphology of the pathogen and identification: Hyphae is septate and brown. Conidia typically catenulate, rough walled, produced from both mycelia hyphae and form conidiophores. Conidia produced in chains, measuring 5.3µ - 10.5µ in diameter. The pathogen was identified as *Periconia digidata* (figure 9).

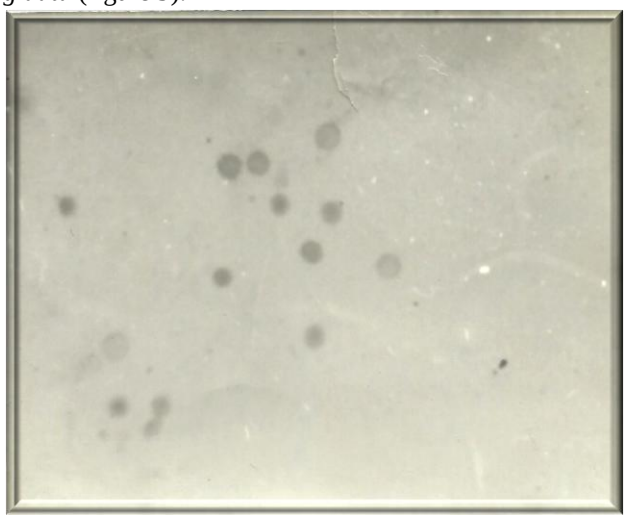

Figure-9
Periconia sp.

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