

Sanjay Sahay *Editor*

Extremophilic Fungi

Ecology, Physiology and Applications

 Springer

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Xerophilic Fungi: Physiology, Genetics and Biotechnology

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Sanhita Sarkar, Namita Ashish Singh, and Nitish Rai

Abstract

Xerophilic fungi are the distinctive organism which can grow under conditions of reduced water activity. The present work highlights the physiological adaptations of xerophilic fungi which include osmoregulation through membrane modifications, osmosensors-mediated sensing of low water activity (aw) and utilisation of alternate substrates, namely, salt and sugar. We have also covered the three unique strategies, namely combative, stress and ruderal, which is helpful for their survival in unfavourable conditions. In this chapter, we have tried to cover the molecular mechanism along with the genes expression responsible for the adaptation of xerophilic fungi under water stress conditions. Further, this chapter covers the various bioactive compounds produced by xerophilic fungi along with their potential bioactivity. In the last section, we have discussed the various aspects of xerophilic fungi such as enzyme and pigment production, air biofiltration, biodeterioration in museums and libraries, etc. We have also covered the health risks associated with the xerophilic fungi, namely fungal infections, food spoilage and mycotoxin production.

Keywords

Xerophilic · Physiology · Adaptation · Biodeterioration · Food spoilage

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