



## Isolation, biochemical characterization and antibiotic susceptibility pattern of bacterial isolates from heritage sites

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**Abstract :** *Ashoka Pillars, Patna, Tomb of Shah Makhdum Daulat Maneri and Ibrahim Khan sites of Patna are being rapidly deteriorated by various mechanical, chemical and biological deteriorating agents, which need special attention for protection. In the present study an attempt has been taken to isolate and identify some of the bacteria which probably can be involved in bio-deterioration. Further, the sensitivity of the bacterial isolates against different antibiotics has been tested. The obtained result could be helpful in application of antibiotics on monuments to check their growth and thus preventing the monuments from bio-deterioration to some extent.*

**Key Words:** *Ashoka Pillar, Tomb of Maner, Biodeterioration, Antibiotic susceptibility.*

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### Introduction:

Biodeterioration is the damage that is caused to any materialistic goods by any living organism right from microbes to mammals. This destruction causes economical loss, cultural as well as artistic losses of heritages, monuments, paintings etc. The world cultural heritages either in the form of mural paintings, stone artifacts or pre historic rock arts are usually under such environment which favours the growth of biodeterioration agents. Considering the microorganism, bacteria is supposed to be one of the major biodeteriorative agent but the exact mechanism of their biodeterioration is still under research.

Harmful microbial activities have generally been noticed on such rock based surfaces that are generally wet or exist in humid conditions. Their presence could be confirmed by the surface decolourization on any rocky substances, due to the alteration in the chemical composition that they bring on it. Bacteria usually damage stone by producing acids from their cell wall, which react with stone surfaces and form crusts, dissolve cations in the stone and stain the surface (Kumar and Kumar, 1999).