

**Bio-deterioration of papers with special reference to National  
Library of Sri Lanka**

By



R.V. Gangabadaarachchi

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*Dedication*

*Dedicated to my Beloved*

*Parents*

Thesis

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## Abstract

Bio deterioration of papers with special reference to National Library was investigated. Deterioration of library materials is a major problem in the National Library. As it is the responsibility of National Library to preserve and conserve the cultural heritage at present for the future generations, deteriorative factors to the collection should be identified. In this study, causes for bio-deterioration was identified and tested the effectiveness of Neem extract (which was prepared by the Department of National Archives) on fungi present on papers. A survey was done to identify the presence of insects, fungi and damages to the collections using stratified random samples. 378 samples of all 3 stack areas of the National Library were investigated. Silverfish, Book worm and fungi infestations were identified in the collection. It was noted that old books as well as newly acquired books were also affected by insects and the percentage of the damages to the collection stored in the second floor was high compared to other stack areas.

Fungi infected books were used to identify the fungi species. Two media preparations were used and Potato Dextrose Agar was supported for growing fungi and produced fungal spores. Nutrient Agar Media was not supported to grow fungi present on papers.

There were two types of fungi identified namely *Penicillium* and *Rhizopus*. Macroscopic features and microscopic features were identified and matched with standard samples.

Neem extract which was prepared by the Department of National Archives was tested in two ways on isolated fungi. Neem extract suppress the growth of fungi, but suitable concentrations should be tested to use as an effective fungicide.

The National Library of Sri Lanka receives copies of Sri Lankan publications from the Department of National Archives under the Printers & Publishers Ordinance. In addition it collects publications about Sri Lanka and publications written by Sri Lankans in foreign countries.

One of the objectives of National Library is to preserve the national & cultural heritage of Sri Lanka through the establishment, development and maintenance of a national collection of library and documentation materials. National Library is responsible in preserving these materials for future generations.

Though libraries change their collections from printed to digital records, major part of the collections are still consisted of paper records. National Library holds of 3,50,000 volumes of books, which is the major part of the library collection and those are paper based. As old and rare collections are accorded a special place in the National Library and taking into consideration the library's role as the depository library, special attention has been paid to conservation and preservation.

The physical condition of an item affects its availability and all the materials that are used to store knowledge deteriorate with time. In 1970, Edwin William summarized this as library materials in libraries will deteriorate tomorrow, although we ought to retard this process. Almost all of these collections are