

Mangrove Halophytes: A source of antiviral substances

Mariappan PREMANATHAN¹⁾, Kandasamy KATHIRESAN²⁾
and Hideki NAKASHIMA¹⁾

Abstract

Mangroves have been studied for their antiviral properties. The mangrove plants were sampled from Pichavaram in the southeast coast of India. The extracts of different portions of mangroves were tested *in vitro* against four RNA viruses *viz.*, Newcastle disease virus, encephalomyocarditis virus, Semliki forest virus and human immunodeficiency virus and two DNA viruses - vaccinia virus and hepatitis B virus. A broad spectrum antiviral activity was exhibited in bark of *Rhizophora mucronata* and leaves of *Bruguiera cylindrica*. In general, plants belonging to the family - Rhizophoraceae are the source of potential antiviral substances.

Key words: mangrove, virus, antiviral, polysaccharides, lignin (not more than five)

Introduction

Mangrove plants are being used in folklore medicine for treatment of several diseases (KIRTIKAR and BASU, 1935; CHOPRA *et al.*, 1956; DATTA and DATTA, 1982). Although mangrove plants are known for medicinal use, specific reports on their antiviral activity are only a few (KIRTIKAR and BASU, 1935). Bearing this in mind, we have conducted a detailed study about antiviral activity of mangrove plants (PREMANATHAN 1991; PREMANATHAN *et al.*, 1992a,b; 1993b,c). This paper consolidates our previous reports on antiviral properties of mangrove halophytes.

Materials and methods

Extraction for antiviral substances: The mangrove plant samples were collected from Pichavaram mangrove forest (Lat. 11° 27' N; Long. 79° 47' E), Tamil Nadu, India. They were washed, shade-dried, and powdered. The samples were macerated with 70% aqueous ethanol followed by an exhaustive percolation of the material with the same solvent (VAN DEN BERGHE *et al.*, 1986). The solvent from the extract was removed under reduced pressure at 40°C. The solid obtained was used in an antiviral assay after dissolving in

1) Department of Microbiology and Immunology, Kagoshima University Dental School, 8-35-1 Sakuragaoka, Kagoshima 890-8544, Japan.

2) Centre of Advanced Study in Marine Biology, Annamalai University, Parangipettai 608 502, Tamil Nadu, India.

