

Endophytic bacterial diversity of mangrove leaves

S. U. Gunathunga* and I. V. N. Rathnayake

Department of Microbiology, Faculty of Science,
University of Kelaniya, Sri Lanka

*Email: samadhi92gunathunga@gmail.com

Endophytes are by definition, the microorganisms that reside in the plant tissues, colonizing locally as well as systemically, without causing any harm to the particular plant. Both the plant and its endophytes have benefits for each other, hence this is called a mutualistic relationship, where both species gain advantage. Considering the scarcity of records regarding mangrove endophytic bacteria in Sri Lanka, a preliminary study was carried out using four true mangrove species from “Kadolkale” mangrove forest (Negombo, Sri Lanka). There are two groups of mangroves; major mangrove species and mangrove associates. Major mangroves are true mangrove species that grow only in mangrove environment, while mangrove associates are found in within or in peripheral areas of mangrove forests. Mangrove species, namely *Avicennia marina*, *Bruguiera gymnorhiza*, *Lumnitzera racemosa* and *Rhizophora mucronata* were selected with the objective of isolating and determining endophytic bacterial diversity of mangrove leaves. For the isolation of endophytes, the healthy mature leaves were surface sterilized, and bacteria from inner tissues were extracted using a buffer and inoculated in to Tryptone Soy Agar medium using spread plate technique and plates were incubated for 1 week at 30 °C. Fifty bacterial isolates were obtained according to their phenotypical attributes. Morphological, cultural and some biochemical characteristics of these isolates were studied and according to Bergey’s manual of determinative bacteriology, isolates were grouped in to their generic level. A total of 17 isolates from *Avicennia marina* (AM), 17 isolates from *Bruguiera gymnorhiza* (BG), 11 isolates from *Lumnitzera racemosa* (LR) and 5 isolates from *Rhizophora mucronata* (RM) were obtained. Majority of the isolates were belonged to the genus *Bacillus* and rest of the isolates belonged to genus *Aerococcus*, *Corynebacterium*, *Staphylococcus*, *Enterobacter*, *Rothia* and *Micrococcus*.

Keywords: Bacteria, Kadol-kale, Leaf endophytes, Mangrove