

Summary

As agriculture forms a major part of economy in Sri Lanka and plant diseases are responsible for large economic losses, more attention is required on plant disease control. In this investigation sesame (*Sesamum indicum* L.) has been selected because of its importance as a oil seed crop and is vulnerable to number of diseases including more serious soil borne diseases. The pathogen selected was *Rhizoctonia solani* which is a causative agent of seedling damping off. The attention was focused on biological control. As soil borne pathogens have to encounter, rhizosphere microorganisms before entering into roots, the most appropriate site for selecting biological control agents in the rhizosphere.

Therefore rhizosphere microorganisms have been isolated using different culture media and identified as far as possible. The common species were for the characterized by electrotyping. As it known that different varieties of a host species can harbor different rhizosphere organisms, three varieties of sesame were used as hosts. The evolution of rhizosphere microflora with age was also followed.

When tested *in vitro* antagonism in dual culture plates, several *Bacillus subtilis* and *Pseudomonas fluorescens* electrotypes were successful. However only *P. fluorescens* electrotypes 2 was effective in controlling the disease in pot experiments. The importance of electrotyping in screening for biocontrol agents against other rhizosphere organisms and use of as many different culture media as possible is stressed.