

ECOLOGY AND BIODIVERSITY OF THE SYMBIOSIS *FRANKIA*-CASUARINACEAE IN NEW CALEDONIA

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The native region of Casuarinaceae family (actinorhizal plants) is Oceania (Australia and Indo-Pacific islands). In New Caledonia, in spite of the reduce area, a great number of endemic Casuarinaceae is present. In fact, 8 species of *Gymnostoma* out of the 18 which make up this genus and 1 species of *Casuarina* are originated from New Caledonia. The two genera, except 1 species, occur in soils derivated from ultramafic rock and are adapted to poor and toxic soils. Futhermore, actinorhizal plants can establish nitrogen-fixing symbioses with the slow growing actinomycete *Frankia*. Because of their ecological characteristics, actinorhizal plants frequently occur as pioneer vegetation and are used in rehabilitation of degraded sites.

This work was a first study of the ecology of the symbiosis Casuarinaceae-*Frankia* in New Caledonia. It was focused on two major topics. The first part will be concerned with the symbiosis, particularly with cross-inoculation trials using crushed nodule suspension as inoculum. The biodiversity of the microsymbiot *Frankia*, in relation with plants species and soil, will be analysed in the second part.

The results obtained, show that this symbiosis is characterized by a great biodiversity. Inside the *Gymnostoma* group, no host specificity was observed. These results were obtained by cross-inoculation tests and molecular characterization of *Frankia*. Futhermore, no correlation was shown between site or soil and diversity of *Frankia* strains.